# BUILDING PARTNERSHIPS FOR ENVIRONMENTALLY SOUND DEVELOPMENT IN NOVA SCOTIA

A
conference
to initiate a program of
cooperative action for the achievement of
sustainable economic development in Nova Scotia

## CONFERENCE PROCEEDINGS

**Hosted by:**
**Industry, Public Interest Groups**
**and Government**

**October 15-17, 1989**

**World Trade and Convention Centre**
**Halifax, Nova Scotia**

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# Building Partnerships for Environmentally Sound Development in Nova Scotia

A conference to initiate a program of cooperative action for the achievement of sustainable economic development in Nova Scotia

Proceedings of a Conference on Building Partnerships for Environmentally Sound Development in Nova Scotia, held in Halifax, October 15-17, 1989.

Edited by

**Terry Collins** and **John K. Underwood**

## CONFERENCE PROCEEDINGS

Proceedings produced with the assistance of the Canada/Nova Scotia Subsidiary Agreement for Economic Development Planning

Correspondence to

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**ENVIRONMENT/ECONOMY CONFERENCE**
P.O. Box 2107
Halifax, N.S.
B3J 3B7

Honourable John G. Leefe, Minister
Nova Scotia Department of the Environment

---

Mr. Allan Shaw, Chairman
Voluntary Planning

Sirs:

We take great pleasure in presenting the Proceedings of the October 1989 Conference on Building Partnerships for Environmentally Sound Development in Nova Scotia.

The environment has never held a higher global profile, because of myriad problems that are now surfacing as a result of years of inattention and exploitation. We sincerely hope that the discussions during the conference will act as a foundation upon which Nova Scotians can begin to assemble a plan of action that will carry the Province safely into the next century; to contribute to the development of a Conservation Strategy for Nova Scotia.

We are indebted to the many people who contributed to the conference; to those who assisted in the planning, and to those who made presentations during the event. We are especially grateful to the Steering and Organizing Committees who worked for many months before the conference to prepare for this important event.

Yours very truly,

Robbie Shaw
Co-Chairman Steering Committee

John K. Underwood
Co-Chairman Steering Committee

## PREFACE

Building Partnerships for Environmentally Sound Development in Nova Scotia was a conference hosted by industry, public interest groups and government in Halifax, October 15-17, 1989 at the World Trade and Convention Centre. The thrust of this conference was to initiate a program of cooperative action for the achievement of sustainable economic development in Nova Scotia.

The conference was a rare gathering of over 300 people who represented some of the largest industries, financial institutes, and law firms in the province, to those who had come on their own resources and who represented themselves and their convictions that we can make this province a better place to live. It is hoped that the conference initiated a dialogue between what has been traditionally adversarial groups, and that Nova Scotians will, indeed, begin to build partnerships for sustainable development.

A challenge was issued to every delegate to take it upon themselves to, within a prescribed time period, perhaps a month, to report to the Nova Scotia Department of the Environment our own personal commitments, whether it be corporations or small businesses that are attending here, on what we could do, in a general sense, towards meeting some of the goals of sustainable development. It was suggested that the Nova Scotia Department of the Environment could publish the percentage of persons or groups that reply and perhaps even their names to every member of the conference.

This challenge was also issued after the conference by way of a letter from Mr. Leefe to conference delegates. Eleven responses were received out of over 300 that were issued. While the response was less than expected, there were several very positive examples of action.

Seagull Pewterers and Silversmiths of Pugwash developed a very innovative program of planting a tree for every person who purchases a specially marked item from their company. They have also promoted recycling programs in local schools.

Valley Environmental Services of Falmouth has developed a residential size wood-chip heater to make more efficient use of woodlot wastes.

Crossley Carpets of Truro is exploring how they might turn carpet mill wastes into useful steam.

Several government departments have initiated recycling programs for office paper, and are examining more closely products they use for possible replacement with products that are more environmentally acceptable.

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## SUMMARY OF CONFERENCE PROCEEDINGS

The National Task Force on Environment and Economy and the World Commission on Environment and Development have argued that future economic growth must take place within a new context, one in which emphasis is placed upon 'sustainability', i.e. conserving and enhancing the resources upon which economic growth is based. This approach termed "sustainable economic development" has been defined by the National Task Force as development which ensures that the utilization of resources and the environment today does not damage prospects for their use by future generations. The World Commission on Environment and Development called for a new era of economic growth - one based on environmental safeguards. It's 1987 report concluded that "Humanity has the ability to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs.

Throughout the world, governments, businesses, industries and people at the grassroots have embraced the concept of sustainable development, in the realization that the future of life on our planet depends on our ability to proceed with necessary economic development while mitigating environmental degradation. Maurice Strong, a Canadian on the WCED, suggests that "the next three decades are going to be the most decisive period in human history".

Canada has achieved world recognition for its progressive environmental programs. Senior executives from Alcan, Dow, INCO, Noranda and the Canadian Petroleum Association have worked with government and private organizations to formulate a plan of action to lead towards Sustainable Development in Canada.

Nova Scotia was represented on the Task Force of the Canadian Council of Resource and Environment Ministers, and is now in the forefront of efforts to translate those recommendations into provincial policies. This conference, "Building Partnerships for Environmentally Sound Development", was one of the initiatives to provide an opportunity for the public, industry and government to plan an acceptable sustainable development strategy for the province of Nova Scotia.

It was anticipated that this conference would attract 200 delegates. The final number, however, exceeded 300. This overwhelming response supported an earlier belief that people were genuinely interested in communicating their thoughts regarding the environmental future of Nova Scotia.

The conference was held in Halifax at the World Trade and Convention Centre, October 15-17, 1989. Sunday evening began with registration and an informal reception which gave delegates a chance to become acquainted and to enjoy a little of Nova Scotian hospitality. The conference was organized into four sessions and a series of smaller workshops.

Session I began on Monday morning and was moderated by Louis Comeau, President and Chief Executive Officer for the Nova Scotia Power Corporation. A welcoming address for the conference was given by the Honourable John G. Leefe, Minister of the Nova Scotia Department of the Environment and introductory

remarks to the delegates were given by **Robbie Shaw**, Executive Vice President of National Sea Products Limited. **W. H. Lindner**, Executive Director of the Centre for Our Common Future set the tone of the conference by introducing the concept and importance of sustainable development. Mr. Lindner was followed by remarks from **Beatrice Olivastri**, Executive Director from the National Survival Institute in Ottawa who stressed the challenges and opportunities for sustainable development that exist in Canada.

Session I concluded with a panel discussion that focused on sustainable development in Nova Scotia. Members of the panel included: **Jim Harrison**, Chairman of the Nova Scotia Environmental Control Council, **Dr. John Savage**, Mayor of the City of Dartmouth, and **Dr. Ellen McLean**, President of Associated Country-Women of the World. Their discussions highlighted what effects sustainable development will have on the various sectors of the economy in Nova Scotia, for example, agriculture, forestry, energy, fisheries, construction, human resources, transportation and research and development.

Session II commenced immediately after lunch and was moderated by **Dr. Douglas Myers**, Dean of Henson College at Dalhousie University. The keynote address was provided by **Raymond Côté**, Associate Director for the School for Resource and Environmental Studies at Dalhousie University. He reflected on the current state of the Nova Scotia environment, considered the issues arising out of that analysis as they might affect our future, and identified some directions and opportunities which were discussed in the workshops that followed. Delegates proceeded into smaller workshops of approximately 30 people and were asked to consider recommendation 1.8 of the National Task Force on Environment and Economy which called for development and implementation of policies and specific projects demonstrating environment - economy integration with multi-sectoral involvement. Specifically workshops considered (1) the policies/criteria and key elements, (2) how these fitted into a strategy for sustainable development in Nova Scotia, and (3) examined examples that currently fit these criteria. Conclusions from each workshop were summarized and presented in a Plenary Session that immediately followed.

After a short break, there was a reception and dinner. Various presentations and speeches were given including a stimulating address by the Honourable John M. Buchanan, P.C., Q.C., the Premier of Nova Scotia.

Session III began on Tuesday morning and was moderated by **Janis Raymond**, Director of Marketing for the Nova Scotia Department of Fisheries. The keynote address was provided by **Roy Aitken**, Executive Vice-President for INCO. He discussed sustainable development and the bottom line with reference to INCO and their efforts through Research and Development to reduce sulphur dioxide emissions. The first of two case studies was given by **Dr. Phil Read**, senior advisor of technology commercialization for CANMET. He discussed the role of clean coal technology in achieving sustainable development and the applicability of these processes to Nova Scotia. The second case study was given by **Archie Fader**, president of the Society of Nova Scotia and Prince Edward Island Bottle Dealers and Recyclers who provided an informative presentation from the viewpoint of a professional recycler.

In a second workshop, delegates explored what mechanisms could be used to encourage the public, the private sector (industry) and government to promote and implement sustainable development. Information recorded during each workshop was again presented in a Plenary Session that immediately followed.

At Tuesday's luncheon, the conference was pleased to have as a guest speaker, **Mr. V.E. Tretjakov**, Deputy Director General for the Department of Economics and Rational Uses of National Resources, State Committee for Environmental Protection from the USSR. He summarized the basic thrust of the mechanisms for natural resource utilization in the Soviet Union. Mr. Tretjakov was graciously introduced by **Jim Vollmershausen**, Director General, Conservation and Protection (Atlantic), Environment Canada.

Session IV commenced immediately after lunch and was moderated by **Dr. Marion Fry**, President of the University of Kings College, and **Brenda Haley**, Policy Analyst for the Nova Scotia Department of Industry, Trade and Technology. The keynote address was given by **Susan Holtz** who is a private consultant and currently a member of the National Round Table and Vice-Chair of the Nova Scotia Round Table. She conveyed her experiences from her participation on the National Task Force on the Environment and Economy. Ms. Holtz's address was then followed by three case studies. The first was given by **Audrey Manzer**, Chairman of the Dartmouth Lakes Advisory Board. She related sustainable development and the approaches the board has taken for the last 18 years regarding environmental issues and the Dartmouth Lakes. The second case study was presented by **Katharine Rice**, Director of Universalia Atlantic who talked about the success of a river enhancement project in Cumberland County which uses offenders and unemployed people to restore fish habitat. She effectively illustrated the win-win spinoffs that result from a partnership arrangement between government and private sector. Lastly, **Hugh Fairn**, a founding member of the Land and Resource Co-ordinating Council for Voluntary Planning (LRCC), reviewed the growth of the LRCC and the way cooperation has been used to enact environmentally sensitive and sensible development.

A final a wrap-up panel of three speakers, moderated by **Ivan Duvar**, President of Maritime Tel and Tel, presented views on how to initiate a sustainable development strategy for Nova Scotia. Included in this panel were **Armand Pinard**, Deputy Minister of the Nova Scotia Department of the Environment, **Tom Hall**, President of Stora Forest Industries Limited, and **Dr. Patricia Lane**, President of P. Lane and Associates Limited. **Mr. Pinard** conveyed the Nova Scotia Department of the Environment's commitment to complete a Nova Scotia Conservation Strategy for the achievement of sustainable development by the close of 1992 under the direction of the Nova Scotia Round Table on Environment and Economy. **Mr. Hall** reviewed Stora's policy on the environment and reviewed what steps they have taken to achieve these polices and how they relate to Nova Scotia. **Dr. Lane** talked about the advantages of anticipatory environmental planning and outlined a blueprint for action in Nova Scotia that suggested a fully integrated approach is necessary if we are to achieve sustainable development.

Closing remarks for the conference were provided by **Armand Pinard**, Deputy Minister of the Nova Scotia Department of the Environment and **J.R. "Pat" Ellis**, Past Vice-Chairman of Voluntary Planning.

A summary of recommendations from the workshops are provided immediately following this overview and a list of delegates attending the conference can be found at the end of the Proceedings.

The format of these Proceedings follows the itinerary used during the conference. Information presented here was either reproduced from presentations recorded during the conference or from prepared notes provided by the speakers.

## RECOMMENDATIONS FROM THE WORKSHOPS

The following is a summary of recommendations that were presented during the Plenary Sessions. For more details of these recommendations and other ideas that were discussed during workshops and papers, refer to the the full Proceedings.

The recommendations do not necessarily reflect the views of the Conference Steering Committee or sponsors. They are comments which were passed during the conference, which have been summarized below for comment and consideration.

1) Create a Provincial Task Force on environmental education. Education was the single most agreed to recommendation of the conference. Education must take place at all levels of society, for example, schools (across all subjects and all grades), teachers, industry, general public, politicians, and the media. It was suggested that money should be allocated to develop better information gathering methods so that the educators can provide accurate information.

   Education is needed to reinforce a massive attitude change through public awareness, the suggestion was made to develop environmental hotlines. It was agreed that we have the skills and knowledge to obtain sustainable development, however, it was society's attitudes that have to change. An excellent example was cited; manufacturers argue that fancy packaging is consumer driven, therefore, if we as the consumer have the power to purchase consciously, we can dramatically affect the way products are packaged.

2) Develop a comprehensive information database on the state of Nova Scotia's environment and resources. A fully integrated database that would guide objectives and provide a bench-mark of success. Included in this database would be a system that defines impacts ahead of time so that people will know exactly what they are expected to do.

3) Develop a communication system that would provide the consumer a way to assess environmentally friendly products.

4) Promote a voluntary set of strategies to change people's behaviour that would ultimately improve the health status of Canadians. Health should be used as a guiding environmental principle. An excellent example regarding the Quality of Life versus endless economic growth suggested that we don't have to step backwards but simply sideways; living with what you enjoy instead of wanting what your neighbour has. Implied in this philosophy was posed this question, "are our consumption patterns sustainable or does the issue really become sustainable demand".

5) Enforce rules and regulations equally for all sectors, particularly government.

6) Promote partnerships and consultation with interest groups, the government, the public and the private sector. There needs to be a change from previous adversarial roles to a feeling of cooperation. The creation of partnerships must be accomplished with realistic goals.

7) Link Research and Development (R&D) with funding to encourage environmentally sound and safe research and development. Provide incentives for the development of environmentally safe products, for example, the so-called green products, and promote industries that are environmentally sound.

8) Require industry to file plans for achieving sustainable operations in each company.

9) Examine current incentive and subsidy programs.

10) Encourage recycling of all types through programs, education, and government incentives. Allocate funds to develop markets and create an infrastructure which can achieve the goals of recycling.

11) Encourage the reduction of waste. At the commercial-industrial level, charge at the landfill site for dumping and then use a portion of this money as an incentive for research into waste reduction. At the domestic level, look at the creation of penalties for non-sorted waste or a levy for more than a certain quantity of waste per household.

12) Increase funding to the Nova Scotia Department of the Environment. It was the consensus that they were hamstrung by the lack of resources and that two areas needed to be addressed: 1) more staff to monitor and assess impacts on the environment and 2) more research to develop new techniques for lessening environmental impact.

13) Organize a formal structure for advisory groups and promote the development of advisory groups in areas where they do not exist. A supportive example is watershed advisory groups which have been active in advising municipalities and the province.

14) Develop a comprehensive resource management plan. If policies are to be developed and administered effectively there was seen a need for more cooperation between government departments. Government should set objectives for various elements of sustainable development and develop policies to achieve them. These policies should be integrated at all levels of industry and government. Objectives should be clearly stated and made available to anyone.

15) Develop short and long term integrated strategies so that action will be taken now and in the future.

16) Develop action oriented policies as opposed to restrictive and controlling policies. The environment must be integrated into every policy by promoting/developing the concept of linked management in terms of linking environmental, social and economic activities.

17) Increase funding for the cleanup of existing environmental problems. Two examples cited were the clean-up of the tar ponds in Sydney and the Harbour in Halifax. One common and unfortunate feature about them is, however, that they are directed towards remedial efforts. It is far less costly to prevent pollution than to clean-up after it has occurred. A way to obtain the money needed would be to develop an Atlantic Environmental Lotto similar to the way Lottos are used to provide money for athletics.

18) Develop a Royal Commission on the Environment to act in an auditing capacity, to review perhaps on an annual basis existing legislation and policies for sustainable development. It would address one or two sectors each year and make recommendations on better implementation of legislation and better policy courses to follow.

19) Create a separately mandated spinoff from the Nova Scotia Power Corporation to promote and develop alternate energy sources.

## ACKNOWLEDGEMENTS

### CONFERENCE STEERING COMMITTEE MEMBERS

Robbie Shaw, Executive Vice President, National Sea Products Ltd. Co-Chairman, Steering Committee
Dr. John Underwood, Nova Scotia Department of the Environment, Co-Chairman, Steering Committee
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Brenda Haley, Policy Analyst, Nova Scotia Department of Industry, Trade & Technology
Vicki Harnish, Director, Economics & Statistics, Nova Scotia Department of Mines & Energy
Peter LeBlanc, Secretary, Committee of Regional Executives, Environment Canada
John MacGregor, Sector Coordinator, Voluntary Planning, Nova Scotia Department of Small Business Development
Audrey Manzer, Chairman, Dartmouth Lakes Advisory Board
Dr. John Prentice, Medical Director, Occupational Health Services, Maritime Tel & Tel
Katharine Rice, Director, Universalia Atlantic

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Nova Scotia Department of the Environment
Nova Scotia Department of Mines and Energy
Nova Scotia Department of Industry, Trade and Technology
Environment Canada

## WORKSHOP FACILITATORS

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Sandy Archibald, Chairman of the Board, Britex Ltd.
Creighton Brisco, Provincial Coordinator, Nova Scotia Round Table on Environment and Economy
Paul Buxton, Project Engineer, Upper Clements Theme Park
Douglas Carter, Major of Truro
Gerald Clark, Executive Director, Metro United Way
Murray Coolican, Vice President Government Relations, National Sea Products Ltd.
Lois Corbett, Co-executive Director, Ecology Action Centre
Archie Fader, President, Society of Nova Scotia and Prince Edward Island Bottle Dealer and Recyclers
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Gordan Tidmarsh, Environmental Co-ordinator, Texaco Canada Resources Incorporated

We would also like to acknowledge several other individuals and companies who played an important role in the success of this conference. Shelly Clayton and her staff at the World Trade and Convention Centre who provided invaluable support in the organization of the facilities for the conference. A special thanks to Shirley Deck from the Nova Scotia Department of the Environment for secretarial support during the conference and Dianne Coish and Cameron Crowell, also from the Nova Scotia Department of the Environment, for their help in making arrangements for special guests. Marilyn Aitkinson from the Protocol Office for the Province of Nova Scotia helped prepare for formal functions. Simultaneous translation during the conference and preparation of text for the proceedings was provided by Lena Dempster, Kathleen O'Neil, Paul Duffy, Peter Trela, and Dr. J. Hugh Fraser. Audio visual services were provided by Telav Audio Visual Services and transcription of the proceedings were done by Hansard. Saint Johns Ambulance provided medical personnel throughout the conference. Special thanks are extended to the organizational consultant, Terry Collins, President, From Concept to Print, who always managed to stay one step ahead of problems and pitfalls.

**Monday, October 16, 1989**

**SESSION I**

**Session Moderator: Louis Comeau**

***President and Chief Executive Officer, Nova Scotia Power Corporation. Past President Universite Sainte Anne, Past Chairman Canadian Electrical Association, M.P. (1968-72), and Board Member of Izaak Walton Killam Hospital and Saint Mary's University. Mr. Comeau was awarded a Doctorate in Education (honoris causa) from Universite Sainte Anne in 1986. He is also listed in the Canadian Who's Who.***

Welcome and good morning. I am President and Chief Executive Officer of the Nova Scotia Power Corporation, particularly when the lights are on, when the lights are off I sometimes wish I wasn't. Basically I am not here to give you a speech, I am not here to argue, I am only here to moderate this morning's session, so that should be very simple.

This conference is a very exciting one on Building Partnerships for Sound Environmental Development in Nova Scotia, I would think a very welcome one. Hopefully this will guide us all in Nova Scotia towards having the kind of environment we want and can afford.

I understand that there is about one third of people here from government, one third from industry and one third from public interest groups. A Chief Executive Officer today cannot afford to neglect the environmental agenda, it forms part of our present culture and quite frankly I am tremendously glad of it. Industry and government have to work together in order to make this happen and to meet the environmental challenge.

Just briefly, I would like to discuss the environment and the consumption of electrical energy. There are many types of industry that use electrical energy, but just to provide you with a little scenario, in Canada, for the past 30 years, the growth of electrical energy was approximately 3.5 per cent annually.

- assuming that the growth of electrical energy over the next 30 years will be approximately 2.7 per cent, which is about 1 per cent less than the growth that has happened the last 30 years,
- assuming that all the potential hydro in Canada that is developable is developed,
- assuming that proven and probable oil and gas reserves are developed,
- assuming that 15 per cent of the demand is met by alternate forms of energy, such as wind, solar and alternate forms, and
- assuming that supply is met by increasing conservation by about 15 per cent of present requirements,

We will still require close to 1,700 megawatts of electrical power per year to be supplied by traditional forms of coal, hydro or nuclear power. This clearly illustrates the need for increased conservation of electrical usage in this country.

This morning we have a tremendous array of fine speakers. Following their presentations, there will be a panel discussion, short break, then workshops. I suggest that you hold your questions until the workshops when there will be more time for discussion.

The first speaker I want to introduce this morning is the Honourable John Leefe, Minister of the Environment for the Nova Scotia Government. *(Speaker Introductions)* We welcome you to this conference.

## Welcoming Address: the Honourable John G. Leefe

***Minister, Nova Scotia Department of the Environment. Elected to the Nova Scotia legislature (P.C. - Queens) in 1978, Mr. Leefe has served as Deputy Speaker of the House of Assembly and as Minister of Fisheries. He was appointed Minister of the Environment in 1988. Mr. Leefe was a teacher and has written articles for several historical and professional magazines. He is author/co-author of three historical books about Nova Scotia, and he has also been a regular contributor to the Liverpool Advance. Mr. Leefe received his education from Kings College and the Universities of New Brunswick and Dalhousie.***

It is my pleasure to welcome you on behalf of the people and Government of Nova Scotia to this conference on Environmentally Sound Development. This endeavour so long in planning draws deeply upon resources of the people of our province, with industry, government and public interest groups as participants and with global neighbours kind enough to come and share their experience with us.

And so it is that, I am pleased formally to welcome to this conference visitors from other parts of Canada, Switzerland, the United States and the Soviet Union. Their presence reinforces to us that we in Nova Scotia cannot achieve alone. It is clear for all to witness that sustainable development must be addressed on a global scale; we are not operating in isolation. I am confident we will learn much from each other in the coming days and that the fruits of our labours will represent our recommitment to global environmental and economic responsibility.

Our world, our home, is very old and we are very young. Yet in the relatively short time we have inhabited this planet, we have developed the capability, if not the capacity to destroy it.

We have come some little distance in our knowledge of natural history since Archbishop James Ussher in 1654 declared with certainty that, creation had occurred on October 26, 4004 B.C. At 9:00 A.M. Local time. Contemporary science with no less and probably greater certainty than the Archbishop, reliably

assured us that planet earth is billions of years old and that according to accumulated evidence, it has survived ice ages, floods and a host of other natural catastrophes. But can it survive humankind? Of course, we must believe it can. The alternative is capitulation to Armageddon, but we must concurrently understand that survival is possible only if nations of the world unite to develop sound economic partnerships which are sensitive and responsible to our planet's fragile ecosystem.

Humankind is now able to view our global home in its entirety through satellite imagery. For the first time in all creation, we are able to witness earth suspended against the abysmal darkness of space; an intricate and elegant ecosystem in so far as we know, uniquely supporting life in contrast to all other heavenly bodies in our universe.

Homo sapiens, (which incidentally is latin for "Man the Wise") is also the only species on earth having the intellectual capacity to alter the environment for the better or worse. Certainly the question facing us today is whether we have the economic, political, and environmental wisdom and fortitude to effect desperately necessary improvements to our terrestrial home or will ours too become an endangered, perhaps even extinct species, given a permanent home in the Museum of Natural History. A small point of course, who would be around for a viewing?

It is a penetrating glimpse into the obvious that concern over husbandry of our natural resources has escalated over the past few years. Constantly, we are bombarded with news from all corners of the globe warning us of environmental degradation at unprecedented levels.

Our lifestyles wherever we live, in whatever state of development our economies are putting extraordinary pressure on our planet. We loose billions of tonnes of soil every year through erosion, yet it can take 50 years to form 30 centimetres of that precious stuff. Soil sustains its own ecosystem and when the soil is lost, so too is its ecosystem and there is no quick fix to get it back. Large parcels of land are altered every year without much thought to what we are losing irrespective whether they are being covered with steel and concrete, turned to grazing, or burned over to create short term agricultural land.

As well as housing complex ecosystems, global forests are vital in the recycling of carbon, nitrogen, and life giving oxygen in our atmosphere. They help regulate rainfall and other climatic conditions and yet <u>we</u> systematically lay them waste yet, with proper management, through reforestation, our forested lands can continue to harbour such ecosystems, provide fuel for the world's population, stabilize our watersheds, and our soils and prevent flooding.

We have heard much about pollution of our oceans which like our forests are so central to climate control, the regulation of the air that we breathe, and provision of the food we eat. It is after all, these massive quantities of liquid hydrogen dioxide which after all make our planet blue.

And we are hearing much these days about the garbage or to use the current and more polite aphorism, waste stream crisis. It is conjectured that soon

there will be virtually no more land available for waste disposal, yet only 25% of paper and less than 30% of our aluminum is recycled world wide.

And so the question stands boldly before us. Must we accept the most dire scientific predictions of our immediate future? Are there really only roughly 10 years to effect massive change? Can we afford the gamble? Who among us is prepared to cast the dice?

In Nova Scotia we understand knowledge is the key to effecting change. But the accumulation and expenditure of knowledge, must not only be directed to the young.

Recent public opinion surveys indicate that our children are not prepared to shoulder the burden of our profligacy. They do not want to be left with the responsibility of cleaning up after us. They know other generations created the mess, and that ours has the power and indeed responsibility to do something about it now, instead of waiting 10 to 15 years for them to take over ...<u>And they are absolutely right</u>.

All of us irrespective how far we may have travelled to come here, are in the enviable position of helping to initiate sound, long term conservation strategies for Nova Scotia. We have come to understand that Environment and the Economy are inextricably intertwined; that the future well being of our province like the future of our planet, is directly dependent upon appropriate husbandry of our environmental resources.

The call to sustainable development is entirely endorsed by our government. In rising to this challenge, Nova Scotia is embarking upon a determined, thoughtful and provocative course of action. Through indivisible partnership of the people, their governments and the private sector, we will ensure contemporary utilization of resources does not deny their use to future generations of Nova Scotians.

This realization is not unique to our province. Were it so, we would not have global neighbours joining with us today. The World Commission on Environment and Development has cogently argued that the delicate life-sustaining global balance is in peril unless nations of the world unite to shift the basis of growth from over exploitation of resources to the principle of sustainable development.

In "<u>Paradise Lost</u>", milton wrote "Awake, arise or be forever fallen". A message for our times. <u>Let the message ring loud and clear</u>.

The time for conflict, for confrontation, is over, it is done. We can no longer afford to play the adversarial game. We, humankind, must cooperate at all levels and that is why we are gathered here; to strike common ground, pulling together to find solutions acceptable to people of good will. We must, we absolutely must, discover and implement solutions that will reverse our plunge into the maelstrom and allow us to cast aside badges which too often have enunciated our divisions. Conflict is nothing more than a diversion of our energies and that is not at all promising for our survival. Divided, we will

assuredly loose sight of the difference between the short and long terms and that blindness unlike Sampson's, would be our undoing.

Humankind has spent millennia developing land, moving human society in and moving nature out. We have at this vital crossroads come to understand that we must again become one with our natural environment. Our natural and human environments must become compatible. Our world, this wonderful, blue, life-sustaining planet, must come under new management and that must be done now.

There are no boundaries, other than a beginning and somewhere an end. Properly managed, our biosphere can sustain the wealth of life our century inherited, provided global resources are not squandered and that they are shared equally by all peoples of earth.

There can be no victory for the environment while so much of humankind exists in poverty and misery. There will be no saving one part of our world while another continues to skid further into degradation. Like it or not, we are in this boat, this fragile spaceship together.

Let us embark on the adventure of these two days wearing as our motto, the words of the founding director of Friends of the Earth, David R. Brower. " I owe an allegiance to the planet that has made me possible, and to all life on that planet, whether friendly or not. I also owe an allegiance to the three and one half billion years of life that made it possible for me to be here and the rest of you too. We have a responsibility to the largest population of all; the hundred of billions of people who have not yet been born, who have a right to be, who deserve a world at least as beautiful as our, ...". My friends, may good fortune and soundness of intellect attend us on this brief, but critical journey.

**MR. COMEAU**: Thank you very much Mr. Minister for a very interesting thought-provoking message this morning to open up this fine session. You will have opportunities to talk about what the minister has said later this afternoon.

I do want to go on with the program and introduce to you Robbie Shaw. *(Speaker Introductions)*

## Introductory Remarks: Robbie Shaw

***Executive Vice President, National Sea Products Ltd. Mr. Shaw is a lawyer who has served as Vice President-Finance and Administration at Dalhousie University. Mr. Shaw has held positions in the senior levels of government and was President of Clayton Developments Limited. Mr. Shaw is a member of the Executive Committee of the Board of Trustees of Queen's University. He is also a member of Voluntary Planning, and serves as co-chair of its Environment and Economy Committee.***

Thank you, Louis. Honoured guests, ladies and gentlemen, as you are all more aware than I, our meeting today had its genesis in 1972 in Stockholm. Building on the resolutions expressed there management mechanisms have been developed and communication systems set up to give a form to philosophy.

Another giant stride was taken in 1983 under the aegis of the World Commission on Economy and Development, which made the name of its Chair, Prime Minister Brundtland one to conger with.

I think we must bear in mind that although the Stockholm and Brundtland gatherings were earlier and larger, and although they were convened among all countries in the United Nations, the people in attendance had nothing more to work with than we have, a venue, ideas and a determination to make things happen. Things did happen as a result of those two seminal conferences. We discovered that we can apply remedies of technology to problems of technology.

We cleaned up a river here, established some controls on various practices and substances, nothing gigantic, but enough to underline the fact that there is no excuse for thinking in terms of inevitability. Nor is there any excuse for thinking in terms of a quick fix, and by quick I mean within, let's say, our lifetime.

Unfortunately the few encouraging statistics are still heavily outweighed by the frightening ones, like the supertanker that takes many miles to stop once the command has been given, the man-made ecological problems of today have gathered a momentum that will take decades to lessen significantly.

It is not an easy thing for an industry in this age of instant gratification to accept the fact that there is something that cannot be done by next year, or even the next decade, nor is it easy for the people down wind of industry to wait, as it were, for their skies to clear.

As a business person I know that instant gratification is not always the rule of industry, there are some economic regions, notably in Japan, where business investments are being made for which payback is not projected to begin for 10 or 20 years. We can bring the same kind of faith to our investments in the future of the ecology we share, with everything that lives, in fact we must.

May I take advantage of this opportunity to make a few practical comments on conference organization? First of all the program credits me with the title

of, Co-Chair of the Conference Planning Committee, and let me assure you that is a total misnomer. The real responsibility for organizing the conference has come from the other members of the organizing committee, particularly from the hardworking staff in the minister's Department of the Environment, led capably by Dr. John Underwood. John has worked tirelessly for a number of months, and assisted by a staff that is competent and hardworking, and particulary may I mention Pat Hinch and Diane Coish. On behalf of all of those present many thanks to John and to his staff at the Department of the Environment.

At the risk of sounding gratuitous, Mr. Minister, real credit also rests with the Honourable John Leefe. I do not think it an accident that his moving into the environment portfolio has coincided with the Government of Nova Scotia demonstrating a major commitment to environmental policy development and sensitivity to environmental considerations. So, Mr. Minister, many thanks to you.

May I also point out that we have a very tight schedule in the next two days. The chairs of the various sessions have been asked to adhere strictly to that schedule, sessions will start on time, not the usual 10 minutes later than scheduled. We ask for your cooperation, from which we will all benefit.

A final practical note is recognition of our sponsors. Not one company turned down my request for sponsorship. I urge you to have a look at the list of sponsors on the back of your program. Several years ago, frankly, it would have been difficult to obtain sponsors to the level we are asking from companies, the thousands and thousands of dollars, or if they did so they would do so because they felt they must. Today they responded positively because they are interested and because they are interested in a genuine partnership.

Likewise, a number of government departments, mostly provincial, but one federal, and the Nova Scotia Salmon Association have been generous sponsors. To those sponsors goes some of the credit for the success of what I am sure will be a successful conference.

Other than the simple fact of making a beginning, it is difficult to say what we may realistically hope to accomplish during this conference in terms of quantifiable results. I think we all know what would most certainly be the case if we had not undertaken it. Without this beginning the business, non-profit, government and educational sectors of Nova Scotia as extensions of the people of Nova Scotia would continue to lack a focus, a form and a foundation for the development of policy and action on our sector of the ecological economic fire front.

Perhaps in these two days we will come to a better understanding of the difference between development, exploitation, stewardship and our relation to each other. Perhaps we will develop an effective network among our various organizations, and just as importantly, in fact more importantly between or among individuals.

As I look over the list of speakers and subjects I am filled with confidence that our time will be spent in a stimulating, perhaps even an exciting atmosphere. One thing is sure, in a spirit of obligation rather than of

complacency we must recognize that you are a group of very influential people. That being so we have an opportunity here to coalesce and to apply our influence, not in self-interest, but as our contribution as the luckiest of the lucky in the most beautiful part of the world.

We can help to establish the Nova Scotian effort toward the maintenance and balance of those two universal entitlements of all people a life and a being. It goes without saying that in the field of sustainable development there is no success in isolation. What we undertake here today is absolutely nothing unless it interlocks effectively with a global mosaic, from which we will hear from Dr. Lindner.

The implications of this work can stop at no border. When it comes to development, as someone wrote recently, the most underdeveloped territory in the world is our scalps. Thank God the resource found there is a renewable one, let's use it well. Thank you.

**MR. COMEAU**: Thank you very much, Robbie. The first keynote address will be given by W.H. Lindner, who is Executive Director for the Centre for Our Common Future, Geneva, Switzerland. Mr. Lindner will speak to us on, "What is sustainable development and why is it so important?". *(Speaker Introductions)*

## Keynote Address: W. H. Lindner

*Executive Director, The Centre for Our Common Future, Geneva, Switzerland. Mr. Lindner is an attorney who received his law degree from Duke University in North Carolina. He was secretary to the World Commission on Environment and Development and past Deputy Director of the World Wildlife Fund. He is also Vice President to Gulf International Corporation and is a member of the Board of Trustees and Honourary Treasurer of the North-South Round Table.*

Merci, monsieur le Président. Je vais suivre la tradition canadienne ici et je vais commencer en français. Il faut que je dis toute de suite que je sais parler français, mais pas assez bien pour continuer.

That is pretty spectacular for a rural American to do. First of all, I want to say that I am sincerely pleased to be here today. There are two reasons for that. First of all, when we were putting together the commission and its public hearings I had an opportunity to spend a considerable period of time in Canada from coast to coast. Again, as a rural American, I must honestly say I knew nothing about Canada. I fell in love with Halifax. We came back with the commission and I liked it again even more, so this being my third visit, I am extremely pleased to be here and hope this time I will have an opportunity to see a little more of the city.

The second reason I am pleased to be here is, as was mentioned, I was the secretary of the Brundtland Commission. The Brundtland Commission, as you know, was made up of 21 politicians and we travelled the world, held deliberative meetings for countless hours, listened for thousands of hours to testimony and public hearings, met with presidents, prime ministers, ordinary people and all of the politicians on the commission like to talk, as all politicians do.

So there were few of us who spent those countless hours in silence, who had no opportunity to express our own opinions because our job was there to serve. So for me to have the opportunity to speak with no politicians except the minister is quite an achievement and I am very pleased about it.

Let me say more seriously that throughout the three years of the commission's mandate which it received from the United Nations in 1983, I was privileged to work closely with the 21 outstanding people who formed the commission, and I refer to them as outstanding in the most sincerest of ways.

In particular, to work closely with its chairman, Mrs. Gro Harlem Brundtland, who, since last Friday at 5:30 is now the former Prime Minister of Norway. She is a person of quite outstanding vision who combines remarkable qualities of leadership with intellectual humility and dispassionate good sense, characteristics, I would say, that are rarely found in politicians today, ones that we would hope could be found in more tomorrow.

Mrs. Brundtland has asked me personally to extend to each of you her best wishes for the success of your deliberations here today and tomorrow. The outcome of the three years of the commission's work, as you are aware, was a report to the Secretary-General of the United Nations and you might say, as I did when I was told that when I first joined the commission, that sounds rather dull, it sounds rather bureaucratic and it sounds rather boring. But believe me, this report was not just another UN report and it certainly has not been placed on the bookshelves of libraries the world over to gather dust.

On the contrary, this report, unlike few or any others before it, has entered on a quite remarkable destiny. Our Common Future, as the report is titled, has indeed become the seminal document on the future of humanity. It has now been published in 17 languages and will shortly be issued in another 6. It has been debated in hundreds of conferences and meetings around the world like this one and its principal messages have been adopted as the basis for future policy by the majority of world governments, by all of the major international institutions, by non-governmental organizations and by regional, national and local authorities concerned with environment and development. Indeed, a quite remarkable achievement and I will come to the need to do away with the rhetoric and start the action needed to put into effect the recommendations of this report.

This momentum, as we at the Centre for Our Common Future can testify to, because it is a principal function of our centre to chart it, is building day by day. We publish, and I am not going to do an advertisement on the centre, but for your information we publish what we call the Brundtland Bulletin which is the most comprehensive overview of what is happening on the concept of

sustainable development the world over. Materials and information on how to obtain that are available outside and I will leave it at that.

Recognizing the above, I think it is fair to say that the commission's report has had a major impact on human thinking about our future, but if we are to prevent the threats looming on our horizon from becoming reality, then the Brundtland Report must continue to inform our thinking and to shape our responses. That thinking and that shaping of responses must be moved down from the institutional level to the local level at local communities and local regions and in individual countries.

In fulfilling their mandate the members of the commission initiated a series of thorough investigations into the links between environment and development and the dynamics that were playing on those links. The commission heard hundreds of hours of spoken testimony at public hearings held throughout the world. It travelled to all the world's major regions, including spending 16 days in Canada during which public hearings were held here in Halifax.

It visited remote places, it considered the views of people from all walks of life, from political leaders, scientific experts, industrialists, business leaders, farmers, fishermen, office workers, slum dwellers, peasants and even remote tribal people living outside any formal economy or any known political structure. A very unusual and unprecedented undertaking, to say the least, but one which allowed the commission to reach deep into the repositories of human understanding about this planet and about the role and place of people upon it.

Through this unique process the commission found an extraordinary unanimity in people's perceptions, people's concerns and people's hopes for the future. Most interesting, perhaps, was that they found everywhere from the office of presidents to the dwellings of slum dwellers, hope and optimism, while people knew and understood the dangers which threaten our future they were also deeply convinced that human ingenuity and human solidarity had the power to change the course of human progress.

Needless to say, our Common Future was strongly influenced by this process of public participation. Understandably then, it is not another doomsday prediction authored by professional alarmists. On the contrary, it is strongly positive. Realism, not doom and gloom was the commission's starting point and the hope and expectations for the future expressed by the thousands of people it met, not despair was its guiding philosophy. Its conclusions recognize humanity's powers of survival, its longing for peace, its longing for harmony, its hope for security and its capacity for profound adaptation in the face of overwhelming threats.

Our Common Future is also not a scientific report, albeit it talks a great deal about science. Nor is it a book about environment and development, although it was authored by environmentalists and economists. It is instead, the result of a broad political process of analysis, learning and debate between 21 people from 21 cultures, countries, ideologies, political and economic systems. Even more surprising then, that the report was a unanimous document.

Above all, however, Our Common Future is a statement of worldwide political and public consensus which addresses the emerging political realities which we shall all have to face as we move through the decade of the 1990's toward the 21st Century.

Ladies and gentlemen, I have dealt on the way the commission worked, on the political and consensual nature of the research it conducted, the argumentation it encountered and the eventual recommendations it constructed in order to underline a fundamental point about the subject of your meetings here this week. That is the notion of sustainable development. Far from being a new trendy buzz word concocted by the latest fashionable group of scientists, which I suppose some of you and many of you may suspect it is. Rather, it is a notion that is already understood and accepted by many people the world over. They may not use the terms sustainable development when describing the notion but they clearly understand the notion nevertheless.

So, the turn of the questions you have given me to address today, what is sustainable development and why is it important? First of all, what is it? The commission defined it quite simply as pads of human progress which meet the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs.

Why is it important? Because if we do not succeed in achieving such a balanced state of affairs, we shall be condemning not only ourselves and our neighbours to an insecure and possibly fatal picture, but more importantly and more concerning, we shall certainly be condemning our children and our grandchildren to a hopeless and a futile future.

I suppose, having answered your two questions that I could simply stop here and pass to Ms. Olivastri, but again, since I have the chance to speak I want to say some more.

First let me say that the commission's definition of sustainable development appears to be a seemingly simple prescription. It certainly reads well, it is easy to remember, it has a simple sentence structure. But I can assure you that on examination you will see that it is a very complex and a very controversial concept. Because to achieve sustainable development will require fundamental changes, changes in the way we think, changes in the way we live, changes in the way we consume, changes in the way we produce and changes in the way we behave.

Indeed, sustainable development requires nothing short of a fundamental change of mindset on the part of all people and a fundamental restructuring of all our institutions. But to be more specific let me give you some of the basic ingredients that are prerequisites for sustainable development.

First, it requires political systems that ensure effective citizen participation and decision-making, citizens' right to information and citizens' right to know. That in itself is controversial enough in many parts of the world to occupy us for a considerable period of time.

Secondly, it requires economic systems that are able to generate surpluses and technical knowledge on a self-reliant and sustained basis.

Third, it requires social systems that provide solutions for the tensions arising from disharmonious development. A few of the controversial concepts, land tenure, womens' rights, redistribution of assets, loss of ownership, changes in sovereignty.

Fourth, it requires production systems that respect the obligation to preserve the ecological base for development.

Fifth, technological systems that continuously search for new solutions, more environmentally sustainable processes.

Sixth, and very controversial, it requires an international system that fosters sustainable patterns of trade and finance and equitable participation in economic system and equitable access to it.

Lastly, administrative systems that are flexible and have the capacity for self correction.

In essence then, sustainable development is not a static state of affairs but an ever-continuous and ongoing process of change and adaptation in which the exploitation of resources, the direction and content of investments, the orientation of technological development and institutional change are all in harmony and enhance current and future potential to meet human needs and aspirations.

Indeed, sustainable development is all about meeting human needs and aspirations and not just those of Canadians but those of all people of the world. We must never lose sight of that goal, because, as has already been mentioned here, it is not simply the world of Canada or the world of the United States or the world of Botswana. We now must recognize that our decisions affect the entire world.

We must also recognize, and this is extremely important, that sustainable development is development which is not only ecologically sustainable but is also socially sustainable and economically sustainable and those are very different and distinct dynamics.

The challenge for our times and for the foreseeable future is to create and maintain the political will to convert the concept of sustainable development into action. That inevitably will mean some very considerable changes for us all, changes in our material expectations and patterns of consumption, changes in our relationship with the other peoples of the world, changes in our economic principles and practices and redefinitions of our concept of security.

It must be clear to us all that change is urgent. We simply cannot continue with present patterns, exploiting natural resources until they become exhausted as if there were no tomorrow. We must stop polluting the air, water and space but more importantly, and I underscore, we cannot continue to perpetuate poverty and despair which enslave billions of people the world over and cause them to ever-increasingly degrade the environment on which their future development and ours depends.

Pressure is now on governments and major institutions, indeed on us all, to do something. The undercurrent of human concern about the threats to our common future is becoming a tide. I am sure that loads of government which go against that tide will be swept aside. So great is the impact of changing human attitudes that we are witnessing already vast changes in the nature and structure of world power, the accelerating pace of disarmament by the super powers, the developing rapprochement among many nations and the growing strength and range of activities of our international institutions, all reflect a perception that we are now facing a security threat of a very different kind, one that knows no national distinctions and no boundaries, one that cares not who we are, what language we speak or what country we hail from, a threat against which all the nuclear and chemical weapons on earth cannot protect us.

Glasnost and the easing of longstanding tensions between east and west have provided us with a moment in history when it is possible to scan the horizon and perceive more clearly than ever before the real threats to human security and in doing that it becomes very clear how trivial the old political lineup seems in comparison and how complex seem the problems of creating a world order that is not manifestly out of tune with the needs and aspirations of both the present and the future.

In my view there are two major factors driving the present inequitable world order. Both are at odds with the earth we live on and with human solidarity and both must somehow be brought under control and reconciled together. The first is the northern industrialized world's voracious appetite for more and more development of a kind that eats up natural resources, spits the waste, be it toxic, chemical, nuclear by-products, greenhouse gases, ozone depleting chemicals or whatever, into the air, the rivers, seas and soil as though the natural world were a universal rubbish dip, and all this while sustaining a world that is neither sensitive to nor cares about fundamental dignity of people, but rather allows the poor to become ever-increasingly poorer.

Second is the overwhelming population growth rate which, if expert predictions are true, will result in a world population more than double today's, i.e. between 10 billion and 14 billion people, some time between the middle and the end of the next century with 90 per cent of that increase in the poorest countries of the world.

Considering these two factors among the many examined by the commission, it concluded that the way to address both of them was by economic growth. Indeed, the commission's call for a new era of economic growth stunned many of its readers, yet it made that call because it clearly recognized the inescapable logic that economic growth is the only feasible weapon in the fight against poverty and squalor and it also recognized that only with economic growth could we create the capacity to solve environmental problems, the environmental problems we have created for ourselves and to redesign our lifestyles into sustainable patterns.

Growth alone is not the whole story. Clearly, more growth of the type we have had in the past will of itself not bring an eventual solution any time in the near or dim future which means we must not look solely to the quantitative

aspects of growth but also and indeed, more importantly, at the qualitative aspects of growth. Quality of growth, then, is a central concept in the notion of sustainable development.

We are all familiar with the argument which was long a pillar of so-called green politics that continuing high levels of economic growth were incompatible with the preservation and protection of the environment and of natural resources, that we simply had to choose between the two and that the only way to save the global environment was to put the brakes on world economic growth.

In my view there are fundamental flaws in this idealistic approach, principally because it is out of tune with a world where in the absence of the development of new technologies and access to sustainable livelihoods, population growth threatens in the foreseeable future to overwhelm the earth's environmental carrying capacity and usable resource space.

It is also out of tune because it conflicts with the reality on which many national ideologies in the past have foundered. The simple truth that you do not make the poor richer by trying to make the rich poorer it simply does not work. Human motivation militates against that ideology and ultimately undoes it.

The challenge is thus twofold; to change the quality of our growth, ensuring that it rests upon a solid foundation of sustainable utilization of natural and human assets and secondly, to ensure that growth is equitably shared by us all to ensure that it is not destined for the developed world or to those of us who already have much, much more than we need.

Translating the concept of sustainable development into practice, therefore, involves both understanding the concept fully and the economic mechanisms internationally, nationally and locally to make it work. A clear tenet in the commission's thinking has been that we must come to treat economics and environment as a single discipline. In other words, that in practice we do not even begin to consider development without taking account of the full environmental implications of our proposed activities. This subtly shifts the emphasis away from the traditional idea of economic growth, placing its purpose not so much in terms of ever-increasing monetary income but rather in terms of development and the achievement of overall improvement in the quality of life on this planet.

It contains a second important condition. Obviously present economic patterns cannot continue. There has to be a radical shift in the balance of world economic gain, in favour of those who under our present set-up benefit least. A more equitable world economic order is now an urgent requirement. The poorest, as we have seen repeatedly in tragic circumstances in recent years, are increasingly forced to take drastic short-term measures in order to survive. The governments of poor countries burdened with debt, suffering under inequitable and unfair terms of trade are now paying the price in many cases of decades of unsustainable, often disastrous development schemes, take comparable short-term measures in efforts to keep national economies afloat. For them the existing situation is clearly a vicious circle. They are forced to sell raw materials or more or less equivalently to develop raw material based industries, to pay interest on their foreign debt. They cannot sell manufactured goods

competitively because their industries are too small and they are technologically obsolete.

On the other hand, they cannot modernize their industries because they cannot borrow any money to do so and their limited hard currency must be used to serve as the debt. Their desperation to sell raw materials creates a glutted market, drives market prices lower and lower and makes the problem even worse. Ruined and impoverished peasants then flock into the cities in the hope of funding a better living, swelling the ranks of urban discontent still further.

In these circumstances calls from politicians in the United Nations or in the northern industrialized world for environmental protection on behalf of future generations will understandably be ignored or treated with jeers of contempt.

Ladies and gentlemen, most of the developing world is indeed engulfed in a vicious circle of degradation, despair and failure, a circle of unsustainability. But the more important point for us to recognize is that if that circle of despair and destruction devours the developing world it will ultimately engulf us all for it will destroy the basis for all future development on this planet and we must therefore take immediate steps to change the course of human progress.

Ladies and gentlemen, before concluding I must turn for a moment to what has to be the largest issue we face in our efforts to achieve sustainable development, the radical and daring steps we need to take to overhaul our global, international, national and local institutions and mechanisms of government, consideration of the institutional and legal changes which will be required on a world scale in order to establish the conditions for fostering sustainable development occupied the world commission at length.

Obviously it is essential that sustainable development thinking should permeate all levels of human society and we are aware that people in general are already disposed to accept the notion very readily. It strikes a cord of understanding in people at all levels. It is ordinary common sense and people respond to that. Governments and institutions on the other hand have very, very imbedded self-interest. Their vested self-interest in the political economic status quo and their reluctance to see their own powers or sovereignties diminished find it a much more difficult matter.

As Prime Minister Brundtland said in her opening remarks to the World Economic Forum Symposium last February, "There can be little doubt and we must now all begin to recognize that the concept of national sovereignty is becoming less and less relevant as a basis for inter-governmental and international cooperation.".

So it says much for the favourable overall world political climate and testifies too to the new notion of global security which is afoot that so many world governments, despite that reluctance and the existence of those self-interests, have taken up the debate on sustainable development. That is indeed progress and this means that the work of debating and formulating the new world order that we must have can now forge ahead. We must hope and demand that our

government's major institutions from the United Nations to the regional cooperative bodies go away from the 1992 World Conference on Sustainable Development, due to be held in Brazil, armed with the authority and the mandate from the international community to set about overhauling international and global relationships in a fundamental and unconventional way.

Already the process is underway and it is up to us all in government and in opinion forming organizations to maintain the pressure for needed change. It is clear that if we are to pursue our destiny and move from the concept of one earth to one world then an essential first step must be the creation of legal and institutional frameworks in which a sustainable future can be brought into being. This we have no reason to fear as human society has evolved we have been capable of loyalties always to larger and larger collectants. Attachment to family was not diminished by the dawning of loyalty to the clan or village. Neither that by loyalty to the city or state. Often the larger groupings grew out of a shared sense of threat, a common concern for security or a desire for wider benefits for a larger and stronger community. This is the same impulse that will enable us to achieve a loyalty to one world and so set in motion, sustain and secure our common future.

In conclusion let me say that it does not take any great flight of imagination to see that we have reached a stage in human history where deep disquiet, profound concern about our future is felt by peoples the world over. We all sense it, we all feel it, and because we sense it and feel it we all long for greater harmony, peace and security within ourselves and with others.

It is that desire for peace, that desire and longing for harmony that must motivate us to move toward the changes required to put us on the path to sustainable development.

We need only reach beyond ourselves and embrace the global community to find the solutions which will secure our common future, indeed it really is as simple as that. Thank you.

**MR. COMEAU**: Thank you very much for an interesting address this morning Mr. Lindner for bringing us up-to-date on the commission report and the challenges facing the world. I have just attended the World Energy Conference in Montreal and quite frankly I can tell you that a lot of the challenges that you have raised were discussed and I now have a much better understanding of what the world is facing. You are right, there really is not much choice between growth and the environment anymore. I do believe that the world is moving closer to this goal and that all of a sudden this thing is going to come together. Thank you very much, Mr. Lindner.

I would like to introduce our second keynote speaker this morning, Beatrice Olivastri. *(Speaker Introductions)* Ms. Olivastri will talk to us this morning on "Sustainable Development: Canadian challenges and opportunities".

## Keynote Address: Beatrice Olivastri

***Executive Director, National Survival Institute, Ottawa. Ms Olivastri has working partner status with the Centre for our Common Future and was a member of the Secretariat for Canada's National Task Force on Environment and Economy. She has extensive experience with non-governmental environmental initiatives and educational programs through affiliations with the United Nations Environment Program and the Canadian Environmental Network.***

Thank you. Like Chip I am very pleased to be in Halifax. I never seem to be here long enough, even though I have some family here and some very close and dear friends. I am wishing you very well in your deliberations today and tomorrow, hoping that, in fact, you will have many more meetings like this so we will get to spend some more time here.

I, in discussing this conference and the theme, with John Underwood and Audrey Manzer, and other people, came up with the notion that we might want to look at the challenges and the opportunities for Canada in terms of sustainable development.

First of all I want to tell you that in my capacity at the National Survival Institute, which by the way I do not any longer hold, having decided 14 years as an environmentalist was enough, I am now in the private sector, I have the opportunity to meet with people in environmental groups and government and business in many other countries. I hope those of you who have that same experience have shared my interest, sometimes astonishment, and certainly pleasure at the kind of esteem that Canadians and their experiences in this area are held in, we have a very good reputation abroad.

Now, isn't this the way you start a speech when you say everyone thinks we are wonderful, and here is what we really are? That is not what I am going to do today. We in fact do have an astonishing reputation for leadership in the field of sustainable development. What I am hoping is that the rhetoric that has helped us establish that is growing into reality and is being nurtured and even designed by experiences like you are having today and tomorrow.

I would like to know a little bit more about who is in the audience before I proceed, because I want to tailor my challenges and opportunities just a little bit as I go through my comments. We will just play classroom for a moment, I would like a show of hands from people in the business community who are here, please.

Okay, that is pretty good. Now from government agencies, from whatever level. Great. How about people from environmental groups? Great. People from educational institutions? It really is a great split isn't it? Labour? Nobody from labour?

Let's start with some questions. I thought I could lay out challenges, but then I decided that coming fairly early in the program would give us the

opportunity of asking questions and not having to provide answers, because, of course, that is what you will do in the next two days.

Some of the questions that I want to address here are, do we have to define sustainable development further again, again and again? Where do we begin to integrate environment and economy? How do we get that going? Should we resurrect the conservers society notion? Where are the lollipops in sustainable development? That is actually a quotation, by the way.

Does the question of creditability matter? This refers to the polls that I believe the minister referred to as well. Do actions speak louder than words? What is the difference between co-operating and co-opting? What do incubators have to do with sustainable development? We often hear more about them with chickens and babies and things like that, but I think they have something to do with sustainable development.

Can we move from peacekeeping to earth keeping? Finally, as you often find in a speech like this some comments about education and leadership.

Now, to start at the beginning, do we have to define again, and again, and again sustainable development? We have lots of definitions now. I am quite happy with the one that Chip Lindner shared with us from Our Common Future. I would be quite happy with whatever definition you want to work with, as long as the notion of change comes into play.

I am not at all pleased when I hear people apply sustainable development to the kinds of things that perhaps have been policy, or have been in place for years and years and years. I am more interested in what this notion has to do with about how we change and progress.

I would like to see sustainable development developed through stated goals and objectives. I think those are much more important than which definition you want to work with. It is what you do with that.

I would like to suggest that it is the way we assess success in meeting those stated goals and objectives, the way we assess the lessons that we learn from non-success. I do not want to call it failure, there are lessons to learn when we try our notion of sustainable development, and perhaps do not succeed.

Anyway, let me underline again, it certainly has something to do with change and a little bit later talk about how important it is to not only demonstrate change, but to communicate about change.

One of the things about success that I am interested in these days is again, how we define it. I am always puzzled by how we in the last year or two have seen success in terms of environmental protection as the number of fines and jail sentences that we can come up with for corporations or business people. I do not think that is success folks, I think that is really backwards. Not that we should not have these kind of regulations, not that we should not have stronger enforcement, but success means progress. Jail sentences and fines are not progress, they suggest to me a lack of political will, let's say in a corporate setting. In some cases with smaller and medium-sized companies I would

suggest they perhaps suggest lack of information or sensitivity to the world out there that is now requiring environmental action and protection.

Another part of how we work with the notion of sustainable development is having some handle on the state of our environment. I would like to see this more at a global level, we have a national state of the environment. You are fortunate in Atlantic Canada to have a regional report on the state of the environment, I think we should have local ones, there are a couple of cities in Canada that do that. I think we should have a state of the environment assessment across sectors, where are we now in agriculture? Where are we in forestry, and so on?

Then going back to that idea of objectives and goals, where do we want to go and how do we get there? It all sounds very academic. We have had a federal State of the Environment Report, we will have another one, apparently they are five year cycles with information being issued. I understand there is a multi-sectorial committee involved with it.

I don't feel that it is a real assessment. There is data, there is interpretation of the data, but no one has really, if I can use the phrase, bit the bullet, and said, this is success or this is not success, this is where we want to go, and how are we going to get there. I felt the last State of the Environment Report was quite a lot of milk-toast.

So we need the state of environment, state of industry, state of sectors, whatever you want to call them, assessments. We have to have these benchmarks, a little later I will say something about credibility, but if we have no way to assess we cannot talk about change, and then how do we have any credibility in saying, here is what we have accomplished, here is what we have been trying to accomplish, and so on.

Now, where do we begin with this integration of environment and economy and things like the State of the Environment Reports? I see two tracks all the time, one is pretty well what we all know as environmental protection. This is really clean up. This is taking care of the problems that we have created and sorting out them to the best of our ability.

The second track, and by far the more important in some ways, is the track that is sustainable development, and this is the goal and objective setting, this is the future, short and long-term futures.

I would like to suggest, and I am going to just go through these things quickly, because I know they will come up again and again in your discussions. Under the second track we really have to change the accounting system. We have to change the way we do our national accounts and we have to, as well, change the way we are pricing the life-cycle costing of product manufacturing.

The other thing under that I would like to put forward is the whole notion of tax reform. I am sure we all read the paper, hear the news and know that we live in an era of tax reform. I would like to see that reform broadened to include the kinds of things that need to be done in the environmental field.

This is the place to integrate an economy, we are in the middle of change in tax reform, let's make sure environment is in there.

If we would like one specific place to start let's build the whole notion of recycling into our tax base, whether it's paper, oil, you name it, it is time to get recycling in there as a way of life. I still think, in a sense, there is some clean up we have to do on garbage and our garbage base may shift as we begin to deal with this, but anyway, tax reform and recycling fit together.

Still under this question of where do we begin, I want to point out two global concerns that we have to deal with in Canada, we have to participate in dealing with these issues. One is dealing with the global comments, and especially the whole area of climate change.

I have been very pleased to see the response of the business community to this issue as I have trotted around this continent and the European continent. The thing I worry about, however, is that the response that I hear suggests this is the first major truly global issue that many of the people I am speaking of acknowledge and see, and drastic changes are required and we all know it.

We are going to have to change our behaviour, we are going to have to change development, research and development, we are going to have to change our aid policies in coming to grips with climate change. However, the question of national sovereignty that Chip mentioned a little bit earlier, even though it is evolving, national sovereignty still has to be respected, whether we are talking about climate change or rain forests here.

When I hear about people who are concerned about India and China developing their coal potential, and its impact upon global climate change, when we have not done our homework I don't think adequately in this country, I have some real problems. When we talk about dealing with climate change this is a global issue that we have to deal with here in Halifax, whether it is energy conservation or making sure our vehicles are running efficiently, and a whole bunch of other things that you know, as well as I do, our energy policy in the province, or our energy policy in Canada.

Those of you who had the Globe and Mail this morning will see in the business section on B8, that Ottawa is starting to look at the energy sector through green coloured glasses. It's a good thing green is my favourite colour, because green is showing up everywhere. This is suggesting that the Department of Energy, Mines and Resources is finally considering the environmental considerations of energy policy in Canada. I have to admit some cynicism in reading this, from a deputy minister being quoted who has shepherded through a cutback of almost 90 per cent in the conservation and R and D and alternative energy in this government and is going quite a bit, I think, out of his way to support research and development trade and sales of our CANDU reactors.

Now I do not want to get into a discussion on that, but if on one hand we totally cutback R and D in the alternative sector and we are putting it full steam ahead in terms of candu, my cynicism about environmental impacts on the energy sector being taken into account, I am concerned about that.

That is a whole area that I am sure will get a lot of discussion in the coming days, and weeks, and years. I hear on the circuit that I am working in now, as I said, India and China as two of the particular countries that we are concerned about, what are we doing with our own policy?

I also hear discussions about providing candu reactors as part of aid packages to some of these countries, I think that is another concern to flag and a challenge to deal with. Certainly we need to work across national boundaries in dealing with climate change, I don't think that is the way to do it, but we need to discuss this one more, that is certainly a challenge.

Chip has mentioned redefining international security and this is where, I think, we have a real opportunity here in Canada. We have such a track record in peace keeping, one that we should be very proud of, I think we can build on that to deal with earth keeping.

What I mean by that is that with growing unpredictability in weather more natural catastrophes, along with human-induced catastrophes, with growing interest and concerns about what is happening in our atmosphere and our oceans, we have a marvellous resource in the military. We have scientific expertise, we have research and development capability and budgets that I think could be transformed.

I am very aware that Mr. Barrett made some headlines the other day with a comment along this line, and I was not very happy with his suggestion that we need a war on pollution, I don't like the analogy at all. However, what I would like to say in a much more constructive way is that the military could be playing, and perhaps in some ways already does in terms of emergency response, and this kind of thing.

The military could be playing a particularly vital role in what I call earth keeping. The transformation from where we are now in terms of Canadian resources and where that body of expertise and budgets and political support where that could go, seems to me to be very possible in a country like this, compared to some of the other nations in the world. This is a particularly interesting challenge for us to look at in Canada.

Should we resurrect the conservers society? I realize I am starting to get a bit tight on time here. The reason I put that in is that when we talk about sustainable development, the Brundtland Report, the National Task Force on Environment and Economy, you name it, we do not really come to grips with the question of consumerism and folks I think we have to do more with less, quite frankly. I do not think it is enough just to have green products to buy things that are environmentally packaged, and so on, we have to take much more care, we have to be much more knowledgeable about what we are buying and what we are using it for and where it is coming from. We need more than green products and advertising programs from merchandise and grocery stores and so on, to effect the kind of change we need in consumerism.

I was going to say something about lollipops and sustainable development. The reason I was going to say that is I was recently in the UK at a conference they had on Public Awareness and Education. A new book has just come out that

the UK government has commissioned called, Blueprint for a Green Economy, which I recommend to people who want to track what sustainable development means in terms of economics, it is very interesting.

So I crack open the book and what does it have? A quotation from a Canadian politician that says, "Where are the lollipops in sustainable development?". I thought, boy, is this ever Canadian, I guess, I will have to think about this. What I think it means, and the reason it caught my attention is that I suppose I think there is no free lunch, but someone is trying to sugarcoat a bitter pill and that is why they are looking for lollipops in sustainable development.

I raise this because it fits with my conserver society comment. Conserver society was an interesting concept that melted away because it sounded terrible. Do we have to go back and live in a depression? Do we have to choose to live in a depression-like way? Is that what the conserver society means? Well it didn't, but that notion got stuck there somehow. The notion of sustainable development means change, it means change in consumerism, but I don't think it means choosing to live in a depression-like state or mentality, so the lollipops have to be found and the lollipops are kind of interesting. Very quickly, one company that has found some lollipops for itself, and I am using this one out of the country because I think there are several in Canada and I didn't know which ones to deal with, but the IBM Corporation in the UK has found four lollipops for itself in dealing with sustainable development.

The one that I was told was most interesting to them was the fact that because they are involved with sustainable development on a number of levels they have an incredible interest, or response, from their employees. Their employees came up first as the priority audience for their work before shareholders did. I thought that was extremely interesting.

Anyway, they see one of the lollipops as simply playing a leadership role in the same way they think they do in corporate and social responsibilities, the donations and the involvement they have in the communities where their plants operate, and their offices. So they think enlightened self-interest is still good for IBM's business and sustainable development fits in that.

Computer modelling, data based technology, network, super computing, that is all going to play a major role in managing the world's resources, and of course what business is IBM in, that business. They see an opportunity to be recognized more widely as a company that does what it needs to do in dealing with issues in their own backyard, and in this case it is dealing with CFCs.

This last one in a market driven opportunity to manage their earth resources on a global basis, we are going to need software, we are going to need hardware, all kinds of things.

Do actions speak louder than words? We have a federal minister appointed who was a very senior politician, the most senior ever, appointed to be the Minister of the Environment, immediately he was brought into the Priorities and Planning Committee of the federal Cabinet, and in addition a Committee on the Environment was set up. This was a terrific signal to those of us who were

watching after the last election, how the government would handle this integration of environment economy.

That was an action and I think it spoke volumes about the commitment, what I would suggest is particularly tangible results from that. Going back to my comment about fitting into tax reform, the minds that the machinery of government moving forward on tax reform, now let's get our agenda on the environment in there. This is a perfect opportunity for Mr. Bouchard, as a senior politician to do so. I haven't seen much notice of that yet. We have an action there, I am not sure that it is speaking louder than words just yet.

Setting up round tables. I want to commend this province for being - I cannot remember the race, you were either first or you were second, but I think you were first to set up your round table, it was very close with Quebec, it goes within a matter of hours or something. Anyway, that is an action that speaks volumes, I think, it is an important signal. The thing we have to keep in mind with a round table is, you have to give it time. I am willing to do that, I think you will take all the time you need, but then how do we measure success or non-success in the round table? I hope you address that and I would be interested in hearing about that at some point.

The Prime Minister announced an International Centre on Sustainable Development for Winnipeg at the General Assembly at the United Nations last year. Where is it? This is very embarrassing again as you are trotting around the world and people are saying, oh yes, that centre in Winnipeg, how is it going?

I would like to suggest that one of the new principles under sustainable development is that we hold all political announcements until we have some agreements in order, like financing and arrangements like that, and then we make the announcement, not a year ahead of time, or in some cases we make the announcement four or five times before the item is in place, like the Canadian Partnership Fund, which is a terrific program but it took four or five ministerial announcements before it actually happened.

I guess the message under this one was, do actions speak louder than words? They do, but sometimes it takes us a while to see what the action is and what the result of that action will be.

I think maybe this question of credibility is one I want to deal with. Could you put those overheads up? You may all be familiar with the Southam News poll that was taken that asked people where they got their information.

I think everyone can read that, I don't have to read it, you probably saw something about it in your newspaper anyway. The point I want to underline is, starting from the bottom and working up. Most of us in this room, except whoever had a camera earlier we are not in good shape.

I find this extremely distressing that this is where people seek and get their information on the environment. We spent a lot of time and money, whether we are in government, business, environmental groups or publishers, you name it, on information, and it is not getting across.

It also says something to me about what we must begin to look at in terms of pressuring people in the media to make sure that journalists have enough time to spend time on good research pieces instead of having to turn out their report that day, meet a deadline. This is where our information base is coming from. I would like to make sure the journalists are, not so much better educated, but certainly better supported to spend time on a lot of these stories.

This one on credibility is probably not new, there have been various polls asking this question over the years. I guess the point here is that we cannot afford in the partnerships to work on the cooperative basis, that was mentioned earlier I think by a number of people, when we have that kind of credibility gap with people who have the largest stake in economic decision-making. I think there is a real crisis here that has to be dealt with in terms of building trust and credibility with business and government and the rest of us.

So, let me just finish here by saying it is a particularly Canadian style, I think, to deal with the consultative process. We have done very well at something called the Niagara process when looking at plant modernizations, the hearings and the participation that led into the Canadian Environmental Protection Act, the National Task Force on the Environment and the Economy. All that was great stuff and it was consultative.

Consultation takes commitment of time and money and it begins to build some trust. But what I think it does not do is necessarily find common ground. The minister, I believe, said, the time for conflict is over. I am sorry, I think we will always have conflicts. We come from different value bases, a lot of us, and there will always be some level of conflict.

I think the last challenge I will talk about today is to move from consultative, or some time confrontational work, to one of finding common ground. I do not think we do that. I think, especially in a province where so much of your issues are around natural resource management I think you have to set aside time and resources to find some common ground, some common value base on what you want, getting back to that question of sustainable development. You can do this in a way that is cooperative, trust-building, credibility-building and not co-opting, by taking the time and providing resources for people from different communities to be part of this.

I think that really is the way we have to go forward on sustainable development and all of those other challenges, whether it is to do with building credibility, international security, peacekeeping to earthkeeping, all of those things have to be done from a common base of understanding, knowing here is a range of issues we are just not going to agree on. We will keep tackling them somewhere along the line but here is where we have something in common and let's get on with that.

I will leave you to get on with the next day and one-half of work and I have enjoyed having some time with you this morning. I look forward to your result and much more success from Nova Scotia in the coming day and months and years. Thank you.

**MR. COMEAU:** Thank you very much. There is no question that energy and environment are not separate and we as consumers will have to conserve and learn to live with different consumer products than we currently do. There is no question that we will have to trust each other a bit more than at present.

Almost 20 years ago in 1972, I was a member of the Canadian delegation to the United Nations First World Energy Conference in Stockholm, Sweden. At that time, this conference was chaired by Maurice Strong. We were talking about some of these issues then but now I am confident that we are coming to grips with the problems discussed there and that solutions will be found.

***( Session Recess )***

MR. COMEAU: We dealt earlier this morning with many worldly and Canadian issues. We will now attempt to discuss the issues pertinent to Nova Scotia. The format chosen for these discussions is a panel and the question to be addressed by this panel is, "How does the term sustainable development relate to Nova Scotia?".

To address this question we have three speakers, Jim Harrison, John Savage and Ellen McLean. *(Speaker Introductions)*

## Panel Member: Jim Harrison

***Mr. Harrison is Chairman of the Nova Scotia Environmental Control Council. He was chief chemist and environmental coordinator and consultant for Imperial Oil at several of its refineries in Canada, Central America and South America. Since his retirement in 1982 he has been actively involved in the Air Pollution Control Association, the Dartmouth Planning Subcommittee on Open Space and Environment, the Ministers' Task Force on Hazardous Waste Management and the Halifax Harbour Clean-up Review Committee. He was elected Fellow of the Chemical Institute of Canada in 1975.***

### Perspectives on Sustainable Development

Over the past few years various definitions have been offered as to what exactly we mean by "sustainable development". Some were proposed by the World Commission on Environment and Development (Brundtland Report) as follows:

- development that meets the needs of the present without compromising the ability of future generations to meet their own needs,

- development must not endanger the natural systems that supports life on Earth: the atmosphere, the waters, the soils, and the living beings,

- development requires that the adverse impacts on the quality of air, water and natural elements are minimized so as to sustain the ecosystem's overall integrity,

- development is economic growth based on policies that will sustain and expand the environmental resource base,

- development requires new policies that integrate environment and economy and tackle the sources of environmental problems, not their symptoms,

- development must continue to meet three sets of criteria: economic feasibility, ecologic supportability, and social acceptability.

But I think that these definitions all say the same thing; the best approach is to practice the Golden Rule: "Do unto others as you would they do unto you". Put yourself in the position of your grandchild. What kind of province, nation and world would you want to be handed over to you in, say, 50 years time?

If we think of sustainable development in Nova Scotia, what changes will have to be made in our approaches to living? to working? to our leisure activities? I believe that there will have to be massive changes in our thinking and in our actions in the total community.

First of all, many of our government planning agencies need to have their terms of reference enlarged to ensure that environmental protection and sustainable development are important parts of their responsibilities.

Secondly, environmental agencies need to be reinforced and strengthened, so that the advisory, assessment, monitoring and enforcement roles are adequately carried out.

What effects will "sustainable development" have on Nova Scotia in particular? Let us look at the various sectors of our economy and I'll present my best guesses, with which you may or may not agree. But the questions that I raise can, I believe, form a good basis for the workshop discussions that follow on our agenda.

**AGRICULTURE**

Our Nova Scotian agriculture is very diverse, in that we grow just about every type of produce that the whole of Canada does.

- how can we make sure that our agriculture lands are retained to feed our population and are not turned into commercial and housing developments?

- how can we control the use of pesticides, herbicides, fertilizers and ensure the health of living beings is protected?

- how do we balance food crops, grains, meat and poultry production?

**ENERGY**

Nova Scotia has energy resources in the form of hydro and mineral resources.

- what is the best way to provide for our electrical energy needs?
- with decreasing fossil fuel reserves, how can we encourage reduction of energy use?
- should we provide incentives for small hydro electric plants?
- are fossil fuels (gas, oil coal) which are non-renewable best reserved for chemical production in the future?
- how do we persuade smaller firms to submit to energy audits and who should pay for them?
- are incentives/grants needed for alternative energy production (wind, solar, geothermal)?
- should we opt for the nuclear power route and spend more on R&D on the disposal of wastes (rods, water)?
- how can we best make use of the waste heat produced from our electrical power generating plants?
- should we encourage central or district heating?
- if Nova Scotia policy is to burn local coal for power generation, what is the best environmental safeguard? stack scrubbers? fluidized bed combustion?
- should research be directed towards redesign of the internal combustion engine?

**FISHERIES**

Canada is the world's number one fish exporting nation and Nova Scotia is the number 1 fishing province (25% of the total), with 1986 fish exports amounting to $611 million. The fishing industry is the largest employer and contributor to our Gross Domestic Product.

- what are the provincial, national and international initiatives needed to determine fair allocation of stocks and still have the industry sustainable?

- how can we improve our inventory of fish stocks and improve the accuracy of replenishment figures?

- what place does aquaculture have and should it be encouraged in Nova Scotia and how?

- how do we resolve the conflicts between fishermen and residents in shore communities?

- how do we resolve overcapacity in boats and gear? do we restrict the harvesting of deplete stocks and how do we deal with glutted markets?

- should we insist on the full processing of our fish in Nova Scotia?

**CONSTRUCTION**

- how do we control construction activates to make sure that any environmental damage is minimized or reversible?

- what do we do with excavated material that may be environmentally damaging (like the acidic Halifax slates)?

**FORESTRY**

- how do we arrive at real control of our forests with the present mixed ownership of the resource?

- how good are our estimates of reforestation rates versus the depletion rates?

- how do we regulate spraying operations, particularly with Christmas tree production and power line corridors?

**HUMAN RESOURCES**

- what changes have to be made in our educational systems to provide for the increased demands for trained environmental technicians, technologists and scientists?

- how do we best educate our citizens, our neighbours and ourselves, to translate our concerns about the state of environment into action?

- how do we best retrain our civil servants in all departments to enlarge their understanding of the environment and the need for sustainable development?

- how do we change the attitude of our leaders so that "sustainable development" is practised and is not just a couple of "buzz words"?

- how do we develop the numbers of people who are needed to work on R&D about environmental matters?

**LAND RESOURCES**

- how do we include the idea of sustainable development into our allocation of land resources?
- how do we conserve our land resources to allow a continuing habitat for the various species of animal and plant life?
- how do we share our land resources with all Nova Scotians owners and users alike, and get the necessary mutual understanding and respect?
- how do we provide, through land use planning, for disposal of garbage and waste; do we consider reuse, recycling, incineration?
- do we consider wetlands a barrier to suburban expansion?
- how can we best involve communities in the siting of major manufacturing plants, etc?
- how do we encourage plants that may have the potential for pollution to locate away from populated areas?
- how do we discourage people from moving in and building houses close to manufacturing plants?

**MANUFACTURING**

The need for provision of jobs offers the challenge of maintaining economic growth while still maintaining environmental and human health.

- do we want to have all the processing of our raw materials done here in Nova Scotia, and accept all the possible debits with the credits?
- how can we best make sure that everyone is treated fairly and that regulations are adhered to?
- do we provide stiff penalties for all pollution violations or do we use a carrot approach?
- should we have special sewer charges and fees for waste treatment?
- do we exchange or sell pollution rights?
- what do we do about the small manufacturer, with little spare capital and personnel: do we give tax exemptions, grants or low-interest loans?

- do we recognize or reward those firms and individuals who behave in and environmentally acceptable manner?

**MINING**

Mining is generally regarded as a typical example of resource depletion.

- what do we leave and how do we decide what to leave for future generations?

- how do we ensure rehabilitation of mine areas, both underground and open pit?

- should we allow open pit mining in the first place?

- how can we control runoff and tailings from the mining operations? what about disposal of over-burden?

- how do we resolve the problem of a one-industry town and possible future ore depletion?

**TRANSPORTATION**

- should we retain abandoned railway corridors for future transportation use?

- how can we persuade people to use fuel-efficient public transportation systems?

- how do we allow for increased highway traffic, with an increase in the need for additional highways, bridges, rotaries, and have them environmentally-acceptable?

- are we sure that the economic equations for highway usage take note of the sizeable costs related to upgrading our roads for both increased traffic and increased axle weights?

**RESEARCH AND DEVELOPMENT**

- how should our research and development be focused to address the broad area of environmental management?

- how do we best provide the trained and dedicated specialists that are needed for environmental assessments and judgements?

- how do we make sure that the impact assessment procedures get into the decision-making and policy-making process?

- how do we get governments to encourage and support those activities that are economically and ecologically sustainable both in the short and long term?

- how would you rate these four areas for R&D:
  - forestry practices
  - fishing stocks
  - agricultural production capacity
  - land use planning (urban versus rural development)?

**GOVERNMENTS**

- how do we make sure that all departments are biased in favour of the environment?

- how do we make sure that our government departments are strong, competent and enthusiastic?

- how do we shift governments from a "react and cure" to an "anticipate and prevent" strategy?

- have we directed our policies; in government towards "province building", with emphasis on external markets, and allowed neglect of long term conservation measures, thus leading to ecological degradation?

- how do we influence governments to establish clear environmental goals and standards, together with better statistical data?

- how do we get regulations that promote uniform performance standards and also enhance our environment?

- are our environment department staffs at all levels sufficient in numbers and adequate in training and experience for what we see is needed in the future?

- can we agree that there are significant gaps in data and not enough resource data available to carry out rigorous risk analysis of projects?

- should governments encourage joint research and development and joint use of pollution control and waste treatment facilities?

- how do we educate our government staffs on the environmental implications of government programmes?

- should we strengthen government environmental assessment divisions?

- how can government assist and respond to different public environmental groups and organizations?

- will the new Nova Scotia Environmental Assessment Act and Regulations ensure that projects are examined for environmental quality as well as economic considerations?

- how can governments encourage and enlarge the knowledge in understanding of the environment by both workers and the public?

- should governments institute fees for non-returnable bottles, non-biodegradable containers, etc.?

**PUBLIC**

A recent article in "Discover Magazine" said that fewer than 6% of U.S. adults can be called scientifically literate. A spokesman for Northern Illinois University noted that only about one in twenty adults knows enough about science "to function effectively as a citizen and consumer, when asked to help formulate public policy about issues like nuclear power or toxic waste". For example, only 45% of the people surveyed knew that the Earth travelled around the Sun. Some people in a Gallup Poll thought Chernobyl was the singer Cher's real name!

- do we just say "this group and those colleagues will look after the public interest completely"?

- is it clear that the public needs information, that institutions have to change in order to have a supporting public attitude?

- how do we collect people who have the ability to "recognize evidence, gather it, assess it and act on it"?

- how can we change the public's perception that environmental research doesn't have the glamour and the attention of other areas like space research?

- how do we resolve even small-scale conflicts between individuals and communities whose livelihoods depend on non-sustaining and even destructive uses of resources?

- how do we feel about new advances in materials and technology and how do we recognize potential hazards to the environment?

- how do we educate the public (us) regarding conservation, reuse and reduction of our most important resource-water?

- can we agree as to what are the activities that we want associated with use of our water resources (lakes, streams, harbours)?

- how do we rate the priorities of water usage: industry, commercial, marine, recreational?

- does the "general public" understand what is meant by sustainable development and in that regard, how can we add to the public's knowledge?

- how can we restructure the curricula in our school system to best reflect and recognize sustained use of our resources?

- should we commercialize our fresh water resource and sell it to countries that have short supply, (and can pay for it)?

- should we consider segregation of our domestic waste waters and reuse "grey waters", for example, shower and dish water?

**CONCLUSIONS**

We recognize, most of us, that our economy is primarily resource-based and hence, by inference, environmentally-based. The environment has aptly been stated to be a "support system for, and an integral part of social and economic activity".

With regard to industry and commerce, this sector must accept its social responsibility and be aware of all environmental considerations. This recognition must include enterprises, trade associations and labour unions.

From all the questions that arise when we discuss sustainable development, it is clear that we must have open, complete and continuing dialogue between governments, industry and commerce, and the public.

It is our task to make sure that all of our activity in the province and on this earth recognizes the environment first and foremost.

**Mr. Comeau:** Thank you very much, Jim. I hope some answers to the questions you have introduced will be addressed in this conference.

## Panel Member: Dr. John Savage

***Mayor, of the City of Dartmouth. He is a family doctor and has devoted much of his energies towards health and environmental issues in the metro area. He was a member of the Nova Scotia Advisory Committee on the Environment between 1975 and 1978. During this time he was also a member of the metropolitan Board of the Nova Scotia Commission on Drug Dependency. Since becoming mayor in 1975 he has been a strong proponent of development balanced with a concern for the environment. He has been involved with the development across Canada of the healthy communities concept. He is also an executive member of the Union of Nova Scotia Municipalities and has been chairperson of the Provincial Joint Review Committee of Homes for Special Care.***

Thank you, Mr. Chairman. I appreciate the opportunity to appear before you as a lowly municipal representative with the somewhat acid comment, I suppose, that it will not take place if it does not take place in municipalities.

I particularly liked Ms. Olivastri's comment about peacekeeping to earth keeping. I was born in the 1930's and lived in the U.K. during the war. I was bombed out of school, spent months in air raid shelters and survived to discover a new enemy always in The East and grew up then in the shadow of the atomic and the hydrogen bomb.

Now, for the first time in my life I am seeing tensions easing between super powers and great powers at a time when perhaps nuclear war, rearmament, spending billions on useless arms can perhaps be seen as less of a threat than at any time in 40 years. I am grateful for that as a person who has lived through that.

Now, however, we are seeing environmental destruction as a major threat and I do not have at my perspective the optimism that other people seem to have. I do not see the society in which I live, be it international, be it national, be it provincial, be it municipal, I do not see the same kind of common resolve that I saw during the war, that I saw for 40 years, misplaced perhaps, but directed in one place. I do not see that kind of resolve and determination among the people that I meet, both in government and in the street.

Maurice Strong has said that the next three decades are going to be the most decisive period in human history. It is a time when we have to move, there is no question, yet it does not seem to me that enough of us are taking it seriously either in our personal, in our corporate or our political lives. I suppose I could ask for hands up of those who came by car today as a good example of whether or not there is a conviction that we are destroying the atmosphere. The impact of 400 million vehicles on the roads is, of course, unbelievable. They burn 50 per cent of the world's dwindling fossil fuels, they have reduced close to one-third of our urban areas to parks and highways, they create the pollutants, they create smog through the nitric oxide, the volatile organic compounds, all of this is known to you and I really do not need to repeat it.

In the metropolitan area we may feel that we contribute little to the problems of the world and probably in terms of numbers we do, compared to southern Ontario, New York and other urban areas. We are, however, looking at a population of world cars, and we have heard something about overpopulation and the importance of family planning and the importance of control of population, but Michael Walsh estimates that there will be one billion cars on the world's roads by the year 2025. One billion cars.

The public seems to say, with a catastrophic ambivalence, yes, I'm concerned. Whenever Gallup calls or whenever somebody calls on behalf of the Prime Minister or some poll, somebody asks a question, oh yes, I am very deeply concerned. Yet our primary expense after our house and buying some grub, is to get a car. We have a philosophy that is based on the car.

Coming across this morning, there was an article on Peter Gzowski that I am sure most of you, having arrived on time, did not hear, but it was about the love with the V8 engine and how the V8 engine dominated this person's existence. It was a personal soliloquy by this guy on what a wonderful thing the V8 engine was and I thought, how appropriate. I hear this on my way, I am late of course because there were so many damned cars that I could not get over the bridge, and I hear what a wonderful thing the V8 engine is.

In this area, there is no conclusive belief at the provincial level, at the municipal level, that public transit is really important. We do not do enough about convincing people that it is important and we are the people who are at fault. This ambivalence, which I find interesting as a physician, because it is after all a major human characteristic, indicates that we have not yet, I do not think, at any political level shown the leadership that we should be showing. We have not shown, other than tokenism, a real and genuine and permanent concern for the environment.

At the moment, all of us are going through lip-service. We are trying to appear as green as Mrs. Thatcher, which may be difficult. Our approaches to recycling are rudimentary, although I must say we are beginning to look at the four R's in the metropolitan area, but it is no use us talking about sustainable development as a great goal, particularly in an area of the country that sometimes wonders what development is, let alone sustainable development, through policies that are directed from a federal government, unless we start looking at a massive educational program. This has to be a provincial program, it has to be supported and run through municipalities and it has to be carried out and matched by changes in regulations and by-laws and laws and directions in public policy that we do not seem capable of making at this particular time.

On the question of international and national programs, I will really not have too much to comment. The World Commission has produced imposing and logical documents indicating that we need new concepts and I am in total agreement with them. We must mobilize political will and human ingenuity, as Mrs. Brundtland has said. We all know and yet we continue to accept that we live in a world that is polarized and, to me, morally unacceptable. Close to one billion people are already living in poverty and squalor, yet we in the developed world continue to push for more and more unnecessary widgets and gadgets, all of which consume necessary energy, diverting us from the major task of solving it, and so we

criticize people in Brazil who are struggling for their lives. We have to put our money where our mouth is and revise our aid programs, revise all those political programs at the federal level before we can start bitching about other countries.

I read recently in that very effective supplement, that I am sure some of you saw, put out by Southam News, that less than two weeks worth of world military expenditures would pay for a proposed United Nations plan to minimize dirty water problems in the Third World, and the cost of one Trident submarine would pay for a five year immunization program and spare one million lives a year. So let us not presume that we have got our priorities right, because I do not think that we have.

Now, having been gloomy, cynical and miserable, I will now switch to the optimistic area which is, of course, where municipalities are. We have to be, with two governments over us like that. The City of Dartmouth has a municipal planning strategy review which has been the most detailed, the most involved and, as the chairperson is here, the most exhausting process that has ever been carried out in the city. This review is a policy document that guides city council in its decisions about the future growth and development of Dartmouth and a land use by-law which enforces policies in municipal planning strategy.

There is a proposal, for instance, for an energy advisory board. This board would have the job of advising council on ways to plan, to maximize energy efficiency, working of course with Louis Comeau here, within all city operations. The promotion of alternative energy sources, the promotion and encouragement of better designed buildings, subdivisions, for effective, better and efficient use. We have got to listen to these, not just do as most municipalities have done and as we have done, receive and file. We have got to embody them into our planning concepts.

This leads me into a practical way that I think municipalities can get involved in really looking at a policy of sustainable development, by looking at the Healthy Communities project. This is a concept, the thoughts of which originally came from Toronto, but which was adopted in Europe as the Healthy Cities project and is now back in Canada and we have changed the name to Healthy Communities, because obviously there are many communities of importance outside cities. The Healthy Communities concept, of which Dartmouth is a founder member, suggests that the adoption of health is one of the major issues in all planning decisions by the city, and views health of course in the holistic and in the environmental sense.

Part of the difficulty we get into with health is that we start looking at our system of health, which is a provincial matter and which is basically perhaps much better called a disease system. It is basically devoid at this point, which is why we are waiting with interest the report on the Royal Commission, it is devoid of much of that preventive aspect that needs to be done and just really underlines the concept which I have been fond of saying for years, that health is far too important to leave to doctors. And so it is, because we are talking about the prevention of ill health and the promotion of good health.

That is what the Healthy Communities project does. It puts in the planning process the idea of the environment, the health, the total holistic health, including the disposition of the disadvantage within a community, it puts that as a major planning tool. Now, it is fairly simple and yet it has not been done in most communities and in most countries. It is a process that takes time to get into staff and it is a process that takes time to get into councils.

As a result of newspaper advertisements that we placed in October, we will now have enough people to assemble a Citizens Advisory Committee who will work with the Board of Health in this city to look at ways and means of making in the year 2000, which incidentally is the 250th Anniversary of the City of Dartmouth, a milestone for improvements in the environment and the total health of the community. We do not intend to compete with other communities. We are not interested in saying that we are healthier than you or we are unhealthier than you, we want to see what we can do in 11 years to promote the health of our community.

That is really a project that is only just beginning in Canada and one that I would suggest you could take back to your communities and ask, are people interested? It is not difficult to join. Any information that may be required throughout Nova Scotia, you can just write to me or call me and I would be glad to send you information. But it has got to start at the community level, because then the environment and the total holistic concept of health begins to be part of the planning process, and how in effect we can involve our citizens in that is the other part.

The major event that we will be having probably now in January is a day on the environment, in which we will be asking the federal and provincial governments to assist us, and it will be like a sort of a fair to which all Dartmouth citizens can come.

Now, we have got basically a lot of work ahead of us. We all have. If I sounded cynical and depressed in the beginning, it is only because I do not see that determination that some people are seeing at the common level. I do not see any drop off in the use of cars, I do not see any encouragement in metropolitan transit, I do not see the efforts that I think are important. Despite the sterling work of Ecology Action and other centres, we still do not see that real thrust for recycling that the media talk about, which is reflected in 5 per cent or 10 per cent of people doing it. We do not see the attempt of getting into composting in our personal lives and reducing the amount of garbage and getting into the four R's.

I think it is important that we leave these theories of sustainable development, perhaps, at a level at which policies can be worked out and then we go back and see what we can do in our own municipalities. We have got to change things and I do not think that a more concluding note than the one expressed by Sylvia Sutherland, the Mayor of Peterborough, at the Provinces Round Table there, " . . . it will require action, commitment and self-sacrifice, not on the part of some other individual, not on the part of some other agency, not on the part of some other government, but on the part of each one of us.". Thank you, Mr. Chairman.

**MR. COMEAU:** Thank you, Dr. Savage, for a very interesting talk. I would now like to introduce Dr. Ellen McLean. *(Speaker Introductions)*

## Panel Member: Dr. Ellen McLean

***She is President of the Associated Country-Women of the World. Dr. McLean is a distinguished Nova Scotian who is an Officer of the Order of Canada and a recipient of the Centennial Medal and the Queen's Jubilee Medal. She has a history of active involvement in agricultural associations in the province and has been inducted into both the Atlantic and the Canadian Agricultural Halls of Fame. She also received a Doctor of Law honoris causa from St. Francis Xavier University and Dr. McLean has just completed six years as President of the Associated Country-Women of the World.***

Thank you very much, Mr. Chairman. When we broke for coffee I decided I had better go home, because everything had been said that I was intending to say and there really was not much point in repeating the things that we have already heard. Then as I listened to the two who spoke immediately prior to me, I realized once again a lot of the things that I had wanted to say had already been said. I thought then of something my father taught me quite a long time ago. He was a clergyman and he used to say, if I ever said to him, well, you already preached about that two weeks ago or you said that last month, he said, look, if you have got a good thing to say, you cannot say it too often. So probably this holds true, that if you feel that the things that have been said today are good things, and I do not know how you could possibly think otherwise, then you will agree that there is no harm to say them again.

However, I have moved my papers around, crossed things out, added little things in margins as I have listened all morning. There are a couple of things that I want to share with you from the point of view of a woman, from the point of view of a rural Nova Scotian, which perhaps will give a slightly different perspective to some of the things that you have already heard.

I first of all want to comment on something Dr. Savage just said, when he asked you if you drove here this morning. He made reference to the lack of commitment to public transportation on the part of some municipal governments and provincial governments. Then, of course, if you come from rural Nova Scotia, if you did not have your car you could not get here at all today and probably, even more so in a few months time probably you would not be able to get here at all, because there is no way that we can function unless we use that much maligned, and rightly so, vehicle that we need to have.

I agree with Dr. Savage too when he spoke about not wanting, just to talk in terms of doom and gloom, but finding that he did not feel there was the same kind of commitment and determination probably out there in the ranks of Nova Scotians, generally speaking, the same as I know we find here within these four walls today. We have heard the words over and over again this morning, determination, commitment, change, understanding. These have been repeated, I

think, each time we have had a speaker, and I guess those are the things that we need to remember more than anything else as we proceed with our discussions in the next two days.

We have talked about the definition of sustainable development, what do we really mean by it? I think it is interesting if someone comes into your kitchen and you say there is a conference going on next week in Halifax on sustainable development and how does this affect us in Nova Scotia and how should we relate to that, and they look at you with wonderment and say, what are you talking about, what is it all about, it is beyond me, it is out of my sphere completely, I do not understand it at all. It is very easy for me to see why this should be of concern to each one of us, as Nova Scotians.

I, of all the definitions I have read, like the one that we heard this morning from our first speaker, the one on sustainable development meeting the needs and aspirations of present and future generations without compromising the ability of future generations to meet their needs. It is that balance between economic and environmental goals, that balance that we must achieve.

So many have talked about the complexities of the issue and we all know that, but I think again of those words that we have kept hearing repeated, of commitment and determination. The words sustainable development have in the past couple of years brought together hosts of people at conferences, round tables, whatever you want to call them, academics, business leaders, educators, bureaucrats, politicians, environmentalists and interested citizens who have sat down and talked about it, tried to agree on what they meant by it, tried to agree and decide what plans they were going to make for doing something about it, improving the situation as we have seen it outlined when we have read the Brundtland report, debate the crisis that faces us on this planet Earth.

There has been a lot of rhetoric, there has been a lot of talk, a lot of arguing, a lot of discussion, and I could be very cynical and say, yes, these next two days, we have already had two and one-half hours of it, are again going to be a lot of talk and no action. Is it only going to be talk or is it going to be something else? I am not going to be cynical about these two days because I firmly believe in the exercise that we are going through.

When I read the theme for the conference, Building Partnerships for Environmentally Sound Development in Nova Scotia, I was pleased, I was even thrilled at the prospect, because to me building partnerships is people or groups who take part in something of common concern in some kind of common activity with each other with common goals. They do it maybe for risks, maybe for profits, usually for a combination of both. Then if that is the case, if we can do a lot of talking, if there can be a lot of rhetoric today and tomorrow, but if out of it all can come this partnership that we are going to be able to start upon and that partnership leading to the much necessary action, then it has been a success.

What about these words, our fragile future, ecologies of scale, the road to ruin, our love affair with the car, inventions with good intentions, the greenhouse effect, what does it take to become an eco-conscious consumer in the home, your household and garden waste, the global warning, food and population?

These are all titles of articles I found in just about one hour of reading, of what came into my mailbox on one day, and that did not include the two daily newspapers that come in there, nor to mention the radio broadcasts and the TV shows that I had watched and listened to.

We are being inundated with information and the reactions of the citizenry are very varied. There are those who at one end of the spectrum are what the Southam News agency has called the activists who want to save the world, and at the other end of that spectrum the environmentally hostile who feel that the crisis is overblown. In between are various degrees of complacent and concerned people. As Nova Scotians, we cannot afford to be complacent and we cannot afford to be unconcerned, for all aspects of sustainable development must be our concern if there is going to be any future for us in this province at all. We have to be people who share goals and convictions and are ready to seek common solutions through cooperative action. There, really, lies the whole key to it, which has already been stated today.

As I see it, education and research are at the very core of the crucial struggle for our cleaner environment and an improved quality of life. Education and research will make a difference. Education will change our perceptions and attitudes. Ignorance and a lack of awareness have been huge contributors towards pollution and environmental degradation. Knowledge and awareness can and does and will change attitudes, and until those are changed there really is no hope for us reaching any kind of goals that we are seeking for sustainable development.

Unless we can do all those things that Dr. Savage has mentioned, that others have mentioned, that we are willing to do more than pay lip-service to recycling, saying it is a marvellous conception, and a few of us in our communities drum up interest and gather together the newspapers, the bottles, the tin cans, only to find there is no one that will accept them. No one will take them and they pile up in one of our empty barns until such a time as somewhere, there is going to be somewhere that we can make use of these in the recycling process. I could go on and on listing all the things that we have already heard, of our awareness as consumers of what we are doing and what we are not doing, just to mention the individual citizen, let alone the business-corporate-industrial structure and governments.

An educational program is absolutely necessary so that every Nova Scotian understands, truly understands, what it is all about. That is the only way that we are going to get anywhere in this struggle. It has to be in our school system, in all our youth groups and where better can we start there than with the youth. However, we must also understand when a 4-H member turns to me and said, what are you talking about, it is you that has made the mess, and I must then accept that and say, we are going to try to do something about it and then we know that because of the training you are receiving, the same kind of a situation will not exist 20 years or 30 years down the road. It has to be education in our many voluntary organizations, our service clubs, our trade unions, the business and industrial community. It has to reach into every home in Nova Scotia, telling without sensationalism, without scare tactics, but giving sound objective information about the situation and also the gravity of it and what the future holds if we do not change, then present realistic

approaches to what each one of us can do, finding imaginative solutions to the problem.

So often you hear people say when you talk about bringing about change, what can I do as one person, it does not really matter about me. Never before have I felt it so clearly that it does matter in this instance what every individual can do. They may shrug their shoulders and say, well, you really cannot mean it. It hit home to me very clearly a couple of weeks ago when I stood in a supermarket in the United States, I think it was in the State of Indiana, and I was so intrigued by a long line-up of men and women with shopping bags. What was in the shopping bags? Pop cans. They were bringing them back by the hundreds, by the thousands, for recycling. When I asked them, how have you started this, they said, well, we got talking about it in our community. We talked some more about the aluminum cans and I also met with a person later at a conference I attended. He said, you know, of all the aluminum in the world, 80 per cent could be recycled and only 30 per cent is being recycled now. Then when he told me the astronomical amount of fuel that went into the fabrication of aluminum cans, all we could do was shake our heads.

These men and women in that line-up saw what they could do. Maybe they did not have access to a board of directors, to a government department, easy access to them, maybe they would feel intimidated to go and say their little piece, but they could do it in that way and it was meaningful to them. It was a real lesson for me to see it. Again I kept saying, why not in Pictou County, in the Village of Eureka, is this same thing happening?

I just returned from an international conference where women from 35 countries attended. We saw a reflection of the dynamic leadership of Gro Brundtland when the Norwegian delegates introduced a resolution to that conference, and I quote from that resolution. It was recommending that every non-governmental organization represented at that conference go home to their own countries and go to their national governments, and their provincial in our case, and launch a national campaign for environment and development based on the United Nations report of our common future, a report that symbolizes our last chance to ensure that there is any future at all. The Norwegian delegate spoke in a very impassioned plea, gave us a plea for all doing this when we got home and they showed us their first step in what they were doing in their own country.

They even had the document, which is what has been circulated to every home in Norway, about the situation and what they should do about the committee that has been set up there, representatives from government but also representatives of the non-governmental community who all take a very active part in this. They had not just circulated this to every Norwegian household, but they had thousands and thousands of copies of them and everywhere a Norwegian goes as a delegate to a conference or as a tourist, if it is to an English speaking country, they carry this with them. A true commitment to what they are talking about, what they believe in, and certainly something for us all to take a leaf from that book.

Mr. Harrison mentioned in his comments something about the resources that we have in Nova Scotia and I am not going to list those for you, because we

already know them. Maurice Strong, whose name has also been mentioned several times, spoke about the fact that if we were really going to accomplish our goal in sustainable development it was going to be tough, it was going to be costly and it was going to be painful.

I think we have heard this morning already that leadership has to be more than rhetoric, it has to be backed by solid commitment to a program of policy and change, institutional change and other changes. It has to be commitment on the parts of governments at all levels. We have heard, too, that it is not just Nova Scotia, that we cannot just talk about sustainable development here within our own province but anything we do has to be done in a global context. I think it is very interesting that the first day of this conference is today, October 16th, which happens to be World Food Day.

Mr. Harrison made some reference to agriculture, to the production of food, to the need for conserving land for agricultural use, for the need for us to produce crops that are environmentally sound, that the farmers use pesticides, herbicides, chemical fertilizers and so on in the proper way.

On behalf of agriculture, I just want to leave you with a thought, I don't think there are very many people, who are producers of food in this province or throughout this country, who are not very conscious of their responsibility in this whole sphere, their responsibility to produce wholesome food that is going to be available to all the people and that they do it in a way that is in tune with the environment. It is a long time since I first heard a farmer say, I don't really own this land, I am just a steward of it for my children and my grandchildren.

One of the things I found so interesting when I first picked up a copy of Our Common Future was to read at the very back the acknowledgements. I am not Chinese, but I tend to start reading books from the back to read the bibliographies or acknowledgements first of all. One of the things that jumped out at me from the pages of the acknowledgements at the back was the word, Canada. Often with the word, Canada, were the two words, Nova Scotia.

If you go down the pages of those acknowledgements, you will see the number of Canadians and the number of Nova Scotians who made presentations to that World Commission. To me that says a lot. That says that we already, here in this province, have a very strong group of individuals and organizations who feel a commitment to this cause. I feel sure, then, that out of all our discussions, today and tomorrow, something very positive is going to happen.

Gro Brundtland said, when speaking about the report of the World Commission on Environment and Development, and I quote, "The report does not offer a detailed blueprint for action, but instead a pathway by which the peoples of the world may enlarge their spheres of cooperation.". Thus, it is now up to us, to you, to me and to thousands of people we represent from around this province, to draw up the necessary blueprint for our future.

**MR. COMEAU:** Thank you, very much, to all three panellists. We were scheduled to complete this morning's session at noon and according to my watch it is about one minute past. Lunch is going to be served in Port Royal D and then we are to meet back here at 1:30 p.m. It has been a pleasure for me to moderate this morning's session. We, simply, have done the best we could. Thank you, very much.

## SESSION II

### Session Moderator: Dr. Douglas Myers

*Dean of Henson College, Dalhousie University. Dr. Myers is a professor in the School of Education at Dalhousie University and was formerly Director of the Office of Part-Time Studies and Extension at the Ontario Institute for Studies - Education. His Academic interest include the History and Political Economy of Education, Education and Nationalism, Canadian Studies and educational needs arising from current public affairs issues like environmental protection. Dr. Myers holds a Ph.D. from the University of Edinburgh.*

To begin this afternoon's discussion, I would like to introduce our keynote speaker, Ray Côté. *(Speaker Introductions)* The topic he will discuss with us is entitled, "From an uncertain to a sustainable future: issues and opportunities facing Nova Scotia."

### Keynote Address: Raymond Côté

*Associate Director of the School for Resource and Environmental Studies and a Co-director of the Marine Affairs Program at Dalhousie University. He is also Chairman of the Pest Control Products Advisory Committee for the Province of Nova Scotia and a co-chair of the Environment and Economy Committee of Voluntary Planning Board. Prior to joining Dalhousie, he held a number of senior positions with the federal Department of the Environment. He has been an active proponent of the need for conservation strategies and to reconsider the nature and direction of development policies and practices.*

When preparing my paper for this landmark conference, I was asked to reflect on the current state of the Nova Scotia environment, to consider the issues arising out of that analysis as they might affect our future, and finally to identify some directions and opportunities which might be discussed in the workshops which follow. It is a tall order to review the issues facing Nova Scotians as we attempt to manage renewable resources on a truly sustainable basis, to make the most effective use of non-renewable resources and to maintain environmental quality at an acceptable level. I hope in this brief presentation to be able to put forward some useful ideas recognizing that we all have a stake

in safeguarding the interests not only of our generation but also those of our children, and their children.

I urge as you listen to my talk that you keep three words or concepts in mind. These are sustainable, effective and, acceptable. These words, are important measures of environmentally sound economic development. You have already heard an excellent presentation by Warren Lindner on the importance of sustainable development. But as we consider what Nova Scotia is today and what we want it to be in the year 2000 and beyond, we need some basis for judging whether current practices are sustainable and whether our vision for the year 2000 would really be any different. Your task in the workshops will be to get a sense of that vision, to consider principles and criteria that the different interests represented here can agree on.

Some of the criteria that I offer for your consideration, are:

- development that does not result in loss of species beyond that of the natural evolutionary process,
- activities which can be undertaken without interfering unreasonably with other uses,
- development which strengthens local capacity to provide goods and services,
- development which provides opportunities for people potentially affected to participate in planning and evaluation,
- activities which make effective use of resources through improvements in energy conservation and waste minimization,
- development which improves the quality of life as measured by social, ecological as well as economic factors, and
- development in which resource depletion and environmental degradation are factored into growth accounting.

These are but a few of the criteria that we might apply in exploring a vision of Nova Scotia in the year 2000. As you can see, the words acceptable, effective and sustainable encompass most of these criteria.

But where are we today? To many of us, Nova Scotia is blessed with beautiful scenery, bountiful clean freshwater, extensive forests, productive farmland, accessible coastlines, good air quality, and an ocean which should have a sustainable supply of fish. By contrast, some recent media reports would suggest that the province is highly polluted and that our renewable resources are disappearing at an alarming rate.

Are things really as they seem? The answer to that question is yes and no. Yes, it is true that Nova Scotia has some serious environmental problems, and no, I don't believe that the problems are irreversible.

Let me elaborate further on the nature of some of the environmental problems which face us. Water of acceptable quality is critical to the development of any state and while it is true that contaminated water can be treated such that it can be reused for certain purposes, some uses will no longer be possible. Nova Scotia prides itself in its promotional literature as canada's ocean playground. Yet approximately 160 coastal harbours and inlets are closed to the

direct harvesting of clams, mussels and oysters, a favourite pursuit of residents and tourists alike.

The pollution of Halifax Harbour by untreated sewage and Sydney Harbour by organic chemicals from the "tar pond", reportedly Canada's largest hazardous waste site, may receive national prominence but the extent of the contamination of coastal waters is much more worrisome, in my view. This is because 1) few nova scotians seem to be aware of it, 2) it reflects poorly on provincial and municipal planning systems and 3) it points to a lack of enforcement of basic regulations. By any measure this cannot be considered a sustainable practice.

The "tar pond" is currently the subject of a 33 million dollar cleanup project with some elements which reflect the forward thinking that is becoming increasingly necessary. Not only is the waste material being removed and treated to prevent further contamination of sydney harbour and its aquatic life, but it will be incinerated in such a manner as to produce energy for the Sydney Steel Corporation. The result is a degree of cost recovery on the project. Steps of a similar nature have been discussed for the treatment of sewage discharged into Halifax Harbour. Here, the sewage sludge may be converted by new technology to hydrocarbons which can be burned to offset use of imported oil. The big problems receive the attention but it is the cumulative impact of many small planning decisions which cause the greatest damage.

Nova Scotia's plentiful freshwater also appears to be under increasing threat from a wide range of sources. Acid rain is now well known to all of us as a contributor of pollutants to our waterways. There have been reports that organic chemicals, such as the solvents used in the dry-cleaning process, have contaminated municipal wells in several communities. It is worth noting that similar solvents are widely used in many commercial and industrial establishments throughout the province and these require more scrutiny. Investigations have also been conducted into contamination of groundwater by leaking underground storage tanks, nitrates from fertilizers, salt from highway salting, and pesticides. Clean freshwater is an extremely precious and valuable commodity; we must not take it for granted. The provincial government has just initiated a task force to review of water quality and quantity issues so that we are better prepared to address them in a sustainable, effective and acceptable manner.

In the case of air quality, there have been and continue to be localized air quality problems in several areas. In some cases these have been due to the normal emissions from such sources as electricity generating stations and pulp and paper mills while in other cases the problems have been the result of upsets. In urban centres such as Halifax-Dartmouth, the transportation sector is a major contributor of air pollutants.

However the situation is complicated by the transboundary movement of air masses. Although we contribute a portion of the overall air pollution burden, the province is downwind of the industrial heartland of canada and the United States. As such, Nova Scotia is a receptor of the airborne wastes of others, and therefore bears the costs such that others may benefit. The cost is difficult to quantify but it is believed to be substantial. The provincial government has recognized that Nova Scotia is part of the acid rain problem, and

consequently has signed a federal-provincial agreement to limit emissions of sulfur dioxide. In addition, the power corporation is actively planning to apply fluidized bed combustion technology in the proposed Point Aconi generating station in Cape Breton so as to reduce sulfur dioxide emissions.

Unfortunately, these positive steps will not be enough to counteract a more insidious air quality problem, known as global warming or the greenhouse effect. There is now wide consensus that warming will increase but there remains debate about the onset of different stages because many factors, some natural, others anthropogenic, can influence the rate and degree of warming. There is also uncertainty about the scope of the impacts especially at the regional and local level.

These impacts will likely include sea level rise, changes in rainfall patterns, northward migration of new agricultural pests, gradual changes in forest cover, reductions in sea ice, and possibly enhanced aquaculture opportunities along with expansion of the area currently affected by "red tide". Clearly, there may be good news for some and bad news for others. While it is too early to make predictions with any degree of specificity and accuracy, the informed view is that some of these impacts will be felt in the next 25 - 50 years.

Therefore decisions taken today regarding extraction and use of natural resources and energy sources must take the greenhouse effect into account. This means that we should rethink the emphasis on the use of coal and oil as sources of energy unless we can find a way to use those sources without adding to the atmospheric burden of carbon dioxide. It is true that nova scotia's contribution to that burden is relatively small but on a per capita basis, it is among the highest in the world. At least one alternative should be pursued to a much greater extent: energy conservation.

This brief review could extend into fisheries, forestry, agriculture, and transportation to name but a few sectors where unsustainable practices can be found. Fisheries is perhaps the most prominent of these sectors today where the overcapacity in many aspects of the industry is threatening the viability of the stocks and fishing communities. There are many ecological factors which impinge on the sustainability of our marine fisheries and these are not fully understood. This state of affairs should foster an air of caution in the development of the industry but it does not appear to have done so. The result is, in the view of many Nova Scotians, the second crisis in the past ten years.

However, the story is not strictly one of doom and gloom. There are resource and environmental problems but there have also been success stories. Some of these have been mentioned already but there are many others. The pioneering efforts at integrated pest management in the apple orchards of nova scotia; a company which has been rehabilitating its sand and gravel quarries for many years; a metal plating facility which recovers waste acid and metals for reuse in its operations; modernization programs in pulp and paper mills to make better use of raw materials and energy; new industries which use wastes as resources; etc. We need to understand why these initiatives and others have been successful so as to build our long term strategies on them.

There have also been many initiatives at the provincial and municipal levels of government which ought to be mentioned. The provincial government has released new policy statements in the areas of wildlife habitat, forestry and fisheries in the past couple of years; new legislation has been promulgated to deal with pesticides, hazardous wastes and environmental assessment and several regulations have been or are being drafted. While these do not yet comprise a comprehensive environmental policy linked to sustainable development principles, they do represent significant progress. At the municipal level, we have seen action taken on recycling programs, household hazardous waste collections and efforts to protect and manage watersheds more effectively, and as mayor savage said, much of the initiative must take place at the municipal level.

Well, what does the future hold? How do we ensure that it is sustainable? Can we make the changes that some consider necessary in the next decade to enable us to win the war rather than being satisfied with a few battles? In my remaining few minutes, I want to highlight a few issues and opportunities that might be addressed in the workshops today and tomorrow.

One of the major difficulties in preparing the background paper for this conference was the lack of a comprehensive information data base on the state of Nova Scotia's environment and resources. True, there are information systems on some resources but these are catalogued individually and are generally difficult to access. An integrated system is necessary if we expect to be able to analyze development conflicts and to permit an assessment of progress toward sustainable development practices. Otherwise when will we know whether we have reached particular milestones? In the year 2000, nova scotia should have such a system in place and it should be accessible to a wide range of users.

A second issue is the lack of an environmental education program in the province. On what basis will our future decision-makers be able to make informed environmental choices? There is need for an organized curriculum in the school system at all levels, though environment should not be looked upon as a new subject. Rather the environmental topics should be interspersed throughout the regular coursework in mathematics, natural sciences, social studies, maritime studies, etc. This will necessitate teacher training, specialized in-service programs, support materials and the like. By the year 2000, such a program along with the required training and materials, should already be in place.

Education also occurs informally through the media, the television, radio and newspapers which feed us with much of the information we receive on a daily basis. Ms. Olivastri mentioned the importance of this during the morning session. While it appears that the media are increasingly recognizing their educational role, there is a need to provide more balanced information and more analysis. We have seen changes recently in Nova Scotia with such examples as the science and environment page of the Chronicle Herald and the weekly environment segment on the MITV noon hour show, but these are contrasted with headlines like "harbour-cancer cesspool", and "ship of death" in the case of pcb's, both gross overstatements. So there is still work to be done. An impressive model for newspapers was the special 24 page Southam Environment Project carried by the Daily News recently.

Many new commercial and industrial opportunities will emerge in recycling operations, research and development into new products utilizing wastes, waste minimization technologies, design and manufacturing of more efficient equipment, environmental consultants as well as trainers. Deterioration of the environment is now a primary concern in industrialized countries as well as less developed countries, the east and west. This concern with its focus on environmentally sustainable social and economic development will translate into pressure to do more than apply traditional environmental protection measures and technologies. Those who conceive, design, manufacture or offer advice on the techniques and the technologies that will permit resource extraction, transportation, manufacturing and energy production to occur in a more efficient and effective way, in environmental terms, will reap substantial rewards. The markets of the less developed countries will be open to them in the year 2000.

While we have created some serious pollution and resource management problems of our own, many of them are actually soluble with very limited impact on our overall standard of living. The greater threat to the environment and our way of life is that we have created an economic and industrial system to which less developed countries aspire. It would not be morally acceptable to suggest that the third world could not industrialize and grow economically as we have done. Unfortunately that growth will surely result in substantial increases in carbon dioxide and other gases which will accelerate climate change, more aquatic and airborne pollutants of all kinds, increased deforestation leading to losses of plant and animal species with potential medical benefits to humankind, and pressure for large transmigrations of people between countries and continents.

These are problems of great magnitude and severity and we in the more industrialized countries must find the conviction and the means to assist in their resolution. There are moral reasons for doing so, there is a matter of self- preservation and there are opportunities as mentioned earlier. Developed countries must find ways to live more lightly on the earth and there is no reason why Nova Scotia cannot demonstrate leadership in this regard. Ways and means must be found to become more effective and efficient in our use of energy and materials. The ultimate measure in that approach is a reduction in the per capita use and waste of energy and materials. By the year 2000, Nova Scotia could adopt a per capita standard below which individuals receive some kind of credit and above which people are taxed for imposing a heavier burden on the environment. One model for such a standard is the recommended nutritional intake of the "average" person. As individuals we consume or use more energy and matter, and generate more waste than almost all other human populations on earth. We cannot expect to continue to do so without paying more of the environmental cost.

Nova Scotia recently promulgated environmental assessment legislation and regulations. While this is a progressive step, such legislation is still applied in more or less traditional ways focusing on environmental design rather than alternatives. We need to become much more forward thinking and innovative in our development planning. As an example, communities all over Nova Scotia are establishing or expanding industrial parks. These parks should be designed along environmental principles which require a comprehensive approach to the management of wastes including waste waters, solid wastes, hazardous wastes and

waste heat. Industries and commercial operations could be encouraged to situate in such a way that the wastes of one facility become raw materials for others, thereby reducing the overall energy, material and environmental costs of the park. The technologies and the management information system that could be developed to enhance such planning might also find ready markets in the many industrial parks which will be built in the third world. By the year 2000, municipal and provincial economic development planning should be bound by environmental policies.

Nova Scotia could become a haven for sustainable development demonstration projects. Such an objective would involve developing products and services for specific, select markets not only in north america but abroad. Policies and incentives could be adopted to foster the establishment of small industries throughout the province one, to sustain communities and two, to maintain the capacity of the environment to assimilate the negative impacts of industrial development. Though there are risks associated with these small innovative operations, nova scotia has a number of establishments which can serve as models. Yesterday's news, Suttles and Seawinds, Peninsula Farm, and the new plant producing fish skin products are good examples. This is not to suggest that traditional industries should be forgotten but their emphasis should be on waste minimization. They should be encouraged to consider alternative uses of their wastes in cooperation with government and research institutes. But in the year 2000, many small environmentally sound industries, some involved in high tech, others in more straight- forward techniques, should be in operation from Yarmouth to Sydney.

The changes mentioned in my presentation may well translate into a different type of economic growth, and there may be some changes in our way of life. However, they do not translate into a future with no growth or necessarily, a lower standard of living. The indicators which we have traditionally used, will have changed, there may be dislocations in some industrial sectors. Whether we like it or not, the real costs of the environmental deterioration and restoration will have to be paid. Polls have indicated that Nova Scotians are willing to pay more for environmental security and people appear to respond when presented with opportunities such as recycling. An optimist like me would say that this may well reflect the small beginnings of the necessary attitudinal changes. Whether I'm right or wrong, we must plan ahead such we can adapt as easily as possible to changing environmental conditions and pressures both locally and globally. To do so, we must quit searching for culprits, we must cooperate, we must try to develop a common vision of Nova Scotia in the year 2000. Thank you.

**DR. DOUGLAS MYERS**: Thank you Ray for presenting a stimulating speech on the issues and opportunities facing Nova Scotia. Delegates will now proceed to their workshops.

*( Break for Workshops )*

## Introduction to Workshops

A major thrust of this conference is to initiate the process of drafting a sustainable development strategy in Nova Scotia, identifying goals and partnership mechanisms for reaching those goals. Workshop questions are designed to initiate discussions on sustainable development, and thereby provide some initial guidance to those who will draft the strategy.

## Questions Discussed in Workshop 1

*Recommendation 1.8 of the National Task Force on Environment and the Economy called for development and implementation of policies and specific projects demonstrating environment-economy integration with multi-sectoral involvement.*

1) *What policies/criteria or key elements should be considered?*

2) *How can these fit into a strategy for sustainable development in Nova Scotia?*

3) *Are there now examples of these?*

**RAPPORTEUR:** I can say the Province of Nova Scotia has responded very readily and very professionally to the following statement I am going to make. We have a situation in recycling where we ask Mr. and Mrs. Public to do it all. We do have responsibility at the corporate level and at the institutional level to get involved in recycling. Our products are all generally delivered to us in containers. We take the container, we finish the product, we discard the product and we throw the container away. Four years ago, I presented this position to the government and they said, we will endeavour to get the containers, and I said, I will buy them. We are doing that very nicely now.

We have a waste problem, we have an obligation to society, as corporate citizens, to insist that all our suppliers send their containers to us with their product in a recyclable and refundable condition. The whole package will not cost much more and there is no expense to the end user. In fact, there is a benefit to the end user and it isn't going into our landfill sites. I am talking about plastic container, high density polyethylene. I am talking about various size container (5 gallon-20 litres). I would like to see the corporations and institutions of our province take the same stand the government has taken and say, if you don't use recyclable containers, we won't buy from you. I am not asking for special consideration as a Nova Scotia manufacturer, I am asking that all the corporations, Dalhousie University, the Nova Scotia Power Corporation and the Liquor Commission all take that position and say, we want to buy containers that are being recycled. I can, again, say that the government is doing it, the bandage is in place, but if the patient is still sick, it is time for him to look after himself.

**DR. DOUGLAS MYERS:** Before you retreat there, will that work, simply, by example, by encouragement and by participaction types of campaigns, or is it going to require some new kind of regulation?

**RAPPORTEUR:** Firstly, we do not need regulation because there is a cost incentive, if the container is coming back and you don't have to buy it, the last guy in line pays for the container. Secondly, there is no legislation in place on how to dispose of these containers. We do have a Transportation of Dangerous Goods program and these containers are never 100 per cent empty, there is always some product left in them. Our staff is capable and trained to handle this product, a lot of your staff aren't. They finish an acid-based bowl cleaner, throw it in a green garbage bag and it ends up being compacted, compressed or driven over by a tractor. If it isn't fully empty, we could have a dangerous situation.

There are cost advantages to refilling a container. If you refill 6, 7, 8, 9 or 10 times, it is saving energy, we are not building it 10 times, we are not shipping it 10 times empty, we are shipping it full each time. The whole practice of buying out of Ontario and Quebec, and I don't mean to malign my good neighbours, is because we had no other choice. That policy is ingrained deeply in our purchasing practices. We have yet to have a major corporate citizen, other than the government, accept that. The Bedford, Halifax County, Halifax City and Dartmouth School boards annually dump $17,000 to $18,000 worth of containers in the metro landfill site. They just throw them away. There is no need for it. If we insist that the supplier be responsible, eventually that supplier will either have to build a facility here to do it, or find other conventional ways.

**DR. DOUGLAS MYERS:** But insist that they be responsible as insist through legislation?

**RAPPORTEUR:** Well, let's make it economically feasible, let's do it by example, let some of the major corporations start as the government already has.

**DR. DOUGLAS MYERS:** Jim, did those comments relate to the kind of thing you were discussing around participaction, environmental partners, and so on.

**RAPPORTEUR:** I think it was related more to our discussion about incentives for recycling.

**MS. LIZ CROCKER:** My name is Liz Crocker and our group decided that the question was difficult to focus on so we wandered, and therefore, I share with you 12 things we thought would be helpful.

Number 1, a data base on the state of the environment that would guide objectives and provide bench-marks of success, or as our speaker this morning said, success and not quite success.

Number 2, related to this irregular state of the environment report, perhaps, even on a yearly basis and the advantage of this, not only in terms of guiding objectives and providing bench-marks of success, but it would also serve

to be part of the public education process which people felt we had to do this with everybody involved or failure would be more likely.

Number 3, an education program in this schools that would be pervasive across all subjects and pervasive, also, vertically across all grades, so not a course on the environment in Grade 10, but environmental elements in all courses at all grades. The purpose of this, basically, was to begin or to reinforce a massive attitude change. This was used, needless to say, as a long-term solution, but would, probably, have immediate spinoffs.

Number 4, there is some confusion about what is or is not an environmentally friendly product and it was admitted that consumers, perhaps, need some guidance or some system of assessing a product to help them in their choices. An example that was used of this was the disposable diaper question that is currently before us. It was felt that people are wondering, for example, whether the destruction of trees and the use of landfill sites, how does that measure against the use of phosphates in the water and the use of water to wash cloth diapers, et cetera. It was felt, too, that when consumers are confused or sceptical, they will choose the path of least resistance and not undergo change. So, there was really a responsibility to address this question.

Related to this point, it was stated that industry and/or government are most likely to act when public pressure mounts, but against this it was stated that Nova Scotians can tend, at times, to be apathetic, so where are you between that. There was a statement that action oriented leadership would be advisable.

Number 5, the criteria of health should be used as a guiding environmental principle, that we should not just look at the issue of sustainable development in terms of resource management and depletion, but the health of not only the earth, but the people who live on it. Some support was given to the concept that John Savage referred to this morning on healthy communities.

Number 6, there was some discussion about the Nova Scotia round table and, I think, a fair amount of hope for the round table. The feeling was that the round table must work and to work, if it needs resources to make it work, then it should have those resources available. It is the only structure, we felt, that we have that can look at the overall picture and can have communication between departments. That also says, if you read between my words, that there was some feeling in our group that existing government departments do not talk to each other as much as they could or should.

Number 7, there is some recognition that the Department of the Environment can't do it all and, in fact, maybe the Department of the Environment tends to be more of an after the fact department and that resource departments are the ones that must have sustainable development policies and programs. We were told that the round table is looking at establishing sectoral policy goals and then going through another reiteration of those sectoral policy goals to see whether or not the policies of the different sectors conflict with each other and using that process to try to get to a coordinated, comprehensive, integrated plan of sustainable development.

Number 8, it was said a number of times in a number of different ways that we need action now, that we hope we will move forward aggressively from this conference. I think other people have talked about the need to have specific objectives, but we carried on from the notion of having specific objectives to say that objectives need to be carried out by a multiplicity of integrated strategies that are both short and long term.

Number 9, I think Jim mentioned the participaction model which came up in our group, as well, which I would think of as a voluntary set of strategies to change people's behaviour and the ultimate health status of Canadians. We also use the model of a regulated set of strategies connected with seatbelt usage where there was education towards seatbelt usage, but there was finally some legislative direction and impetus behind that and both participaction and the seatbelt program have really led to very massive changes in our society, so we were optimistic that massive changes can occur. The bottom line of that point, of course, is to agree that there are no single solutions to complex problems and if we think there are, then we really have our head in some bizarre kind of sand.

Number 10, polarizations have to go and I think that point was already made this morning, not only polarizations between industry and environmentalist action groups and government, but also polarizations on environmental issues between political Parties. Isn't it neat that I said that.

Number 11, companies and governments at all levels should have stated environmental objectives that anybody in the citizenry could look at any point in time. Alderman Deborah Grant was at our session and had the stated environmental sets from the City of Halifax.

Number 12, the last one, I will leave with you, which was, I think, an optimistic one. We were reminded in our group that Nova Scotia has a population of only 900,000 people and if it can't happen here, it certainly can't happen in the world, but 900,000 people is viewed as a manageable number and we should be eager and optimistic about getting on with it.

**DR. DOUGLAS MYERS:** That sounds like a platform for some Party or another. I have been wondering whether the diaper issue is the revenge of the boomers. We have all survived parenthood with the help of Pampers, now we want new prospective parents to wash diapers again. I am not sure it is entirely fair. I am also struck by, and this will be an adult education comment, that it is interesting to me that when we say we need immediate action and we must do it now and not leave it to our children, the first action we want to take is to educate our children. I think that is excellent and we must do it, but I think we have to spend some time talking about educating ourselves and, of course, we are in a variety of ways. Are there any other comments, having commented myself, are there any other comments on this list of the 12 steps?

**MR. CHRIS LOWE:** My name is Chris Lowe and I am representing Workshop No. 4. When the workshop started, Paul Buxton looked out into the audience and he saw one face he knew and that was me. I was handed two coloured markers and seven pieces of acetate for overhead projection. I filled out one of them, I think,

and instead of going through it in verbal form, I will put this up on the overhead and go through it on a point by point basis.

Our group attempted to adhere to all three questions, but we tended to get bogged down on points one and two. I think it was generally recognized by our group that the problems we have today are problems that have been identified to us by the scientific community and it is not a make believe problem, it is a real problem. In many cases, the scientists are the people that have put the key in to drive the car. Out of that, we talked about what I have attempted to define as a vision for Nova Scotia and I would consider a vision as something that is above and beyond a policy, where do we want to be 5, 10 or 15 years down the road. Out of that came a couple of interesting points. One of them was that we really have to look at backing winners in Nova Scotia and not propping up our losers. I think we do have a tendency in Atlantic Canada to spend a tremendous amount of money and effort propping up sunset industries or ones that, maybe, are not environmentally sound.

Something else that came out of our discussions on vision was that we are probably going to have to accept some lifestyle change. What that is, we really weren't sure, but there is going to have to be an adjustment in lifestyle. In terms of implementing a vision, there was general consensus within our group that the province is the preferred vehicle to do that, as opposed to the federal government, municipalities or the private sector.

In terms of policies, we saw the need to have action oriented policies as opposed to restrictive and controlling policies. The whole question of fines, et cetera, was something that we recognize to a certain extent as being regressive. In terms of policy issues, we see the need to link environmental, social and economic activities. Also, the whole question of tax incentives, should tax incentives be provided to industry, be provided to individuals who operate in an environmentally sound manner.

Another area that was discussed in our group is the whole question of research and development and the type of funding that should be in place to encourage environmentally sound, environmentally safe research and development. We also talked quite a bit about the whole question of partnership and consultation and the need to have that with various interest groups, the public and the private sector.

Education was another one, and we all recognize that what our kids tell us, we listen to. It seems that our children are very environmentally aware today, and in many cases, we learn a lot from them. The need to have environmental education throughout our whole educational system is very important, but we also recognize that key decision makers, politicians, et cetera, have to be educated in environmental related matters.

We also looked at the whole question of market incentives. In many cases, the issues we are dealing with today are market driven and you can see many companies now are putting products on the market, the so-called green products, and we expect that trend to continue in the future. With respect to Nova Scotia's role in the Third World, we thought there was a need for aid related

initiatives to deal with literacy training, train people to be intelligent and make informed decisions.

We also introduced the concept of linked management in terms of linking policies to programs and controls. One of the key areas we see a need for in that area is linking our environmental legislation and the Planning Act of Nova Scotia. How do we link environmental aspects and land use controls and regulations? Also, we see the need to have linked management, not crisis management. Today, in Nova Scotia, we have a tremendous data base available which can be used to make informed decision making in the environmental area, and in many cases, that information is not available, or it is not available in a form which people can easily understand. I know the province is making initiatives in that regard right now, particularly in geo-based information area.

Something else that generated a lot of discussion in our group was that we have to have equal enforcement for all sectors, and particularly government. Today it appears, according to the discussions in our group, government plays by a different game, they have a different agenda and they aren't on the same level playing field as the private sector. There were a lot of discussions, for example, on quarries for highways and how they can be built very easily, but if a private interest wants to put in a quarry, the hoops they have to go through for approval are significant.

It was also brought up in our group that many of our major environmental problems in the province are public sector problems, Halifax Harbour, Sydney Harbour, Sydney tar ponds, et cetera. Also, a final point that was made on the whole program and control side had to deal with defining management of impacts, and also, trying to look at how impacts can be defined ahead of time, which is a difficult question and how you can put it in place, so people know what they are expected to do.

Finally, we felt the vision, the policies, the programs and the controls were reasonably in place and there was a reasonable opportunity to look at a sustainable development strategy for the province.

**DR. DOUGLAS MYERS:** Thank you very much, Chris. I wonder, I am interested in your comment and I wonder if people think it is, from the group, a fair one about the government and other sectors operating under different rules. I wonder if anyone would want to comment on that. I know we are seeking a common ground, but it does seem to me to be an interesting perspective and is that a problem? Anyone, Jim.

**RAPPORTEUR:** . . . particularly in terms of the relationship between the Province, Stora and Scott and the fact that it is a very uneven playing field for the private woodlot owners to play on.

**DR. DOUGLAS MYERS:** Okay, are there any other comments about that area of tension? The next rapporteur, please.

**MR. GREG HAVERSTOCK:** My name is Greg Haverstock and I am reporting for Group No. 9. You will notice that we weren't even on the program, but we had a very

diverse and interesting group. Chris, I like your outline, maybe we can put it up and I will speak about it. Specific examples we discussed relating to sustainable development, things that are happening already, I understand that the U.S. is either requiring or will require 30 per cent of recycled paper in newsprint, that will certainly affect some Nova Scotian industries. Government specification, for that matter, corporate and individual specifications for products and you already had the example cited by Frank, government requiring materials or products to be provided in recyclable containers. There are several examples of newspaper recycling currently operating in Nova Scotia communities and, I guess, our most notable example is that we have returnable beer bottles in Nova Scotia and for people from outside Nova Scotia, the Liquor Commission pays $1.00 per dozen for beer bottles and that is a pretty effective way of recycling.

We focused more on things that should be done, rather than things that are being done. Several examples were provided regarding the need to remove disincentives for sustainable development. An example was cited where there is a 25 per cent subsidy, up to a certain limit, a $2,500 limit, paid to farmers to use chemical fertilizers. Now, we understand that organic fertilizers are eligible if their content complies with a guaranteed analysis. Of course, if you go to buy your manure from the farmer down the road, he doesn't have one of these guaranteed analyses, so that wouldn't be eligible for the subsidy. That is just one of several examples that were cited and we are not trying to single out or be critical of the Department of Agriculture. What it reflects is a need to examine current incentive and subsidy programs, and I think you will find that in almost every field of endeavour there would be similar examples.

We had quite a discussion of whether we should have incentives or regulations. I was concluded that we needed one or the other or both. In Nova Scotia, regulations aren't usually popular and there is often a better way to do it.

On the education and information theme, given our industrial structure in Nova Scotia with many small industries that don't have a lot of technical expertise, we need a lot of information on things such as waste minimization, technologies, et cetera, so we can provide information and education to our existing users.

Other suggestions for helping achieve sustainable development, require industry to file some sort of plan for achieving sustainable operations in their own company. That could be an administrative nightmare, but again, it would get at all of us, all the users. Government should set objectives for various elements of sustainable development and put in place a means to achieve it. One was suggested earlier by a gentleman in our group, by putting the onus on suppliers to look after their own containers, et cetera.

We need policies to lead to the more efficient use of energy, transportation, settlement patterns, industrial, with the obvious objective of minimizing negative environmental impacts. We need government to be sensitive and, perhaps, more aware of economic dislocations that might result, if we aren't progressive in the sustainable development area, a good example would be 30 per cent import requirement for newsprint.

Lastly, in that area, we recommended that some sort of committee follow through on this conference to ensure that the momentum that we seem to be achieving is kept up. We discussed several other things in the area of values, et cetera, but, perhaps, we could come back to that if we have time.

**DR. DOUGLAS MYERS:** Thanks, Greg. I think that is an interesting comment on the incentives regulation question and that maybe we have many contradictory regulations in place now that need to be sorted out.

**MR. SHERMAN ZWICKER:** Reporting on behalf of Group No. 6, very capably and enthusiastically facilitated by Lois Corbett, my name is Sherman Zwicker. I am the hired gun for the Union of Nova Scotia Municipalities which is the true arsenal of democracy of all orders of government here in Nova Scotia. As you have suggested, Mr. Moderator, I will give you the examples we brought forward of what might represent sustainable development. I might say that all these identifications were felt worthy of appropriate research and development support by government, all orders of government, I assume, with the general concept that eventually they should become self-sustaining in themselves.

Reforestation, the use of waste from the pulp industry, home organic gardening, recycling of solvents and oils, waste heat aquaculture, government assisted composting in urban areas, waste energy exchange, solar heating, production of energy from hydrogen, redesigning of the internal combustion engine and a consideration of restructuring of construction standards. I might say, Mr. Moderator, that we had extreme difficulty trying to reach any kind of consensus. I think it was recognized, and these are my own conclusions, that a good deal more education was required and that the value of this education should be reflected by the accuracy of information.

I would have seen this additional education producing what I might say would be the four C's, communication, conviction, commitment and cooperation. I would like to identify the differences of opinion in our group, and there were a good number of differences, but they were all presented with civility. I would suggest to you that if all our discussions and considerations of sustainable development can be conducted, considered and discussed with civility, then, indeed, Don Quixote's impossible dream may turn out to be and provide us with the potential for progress and reality.

**DR. DOUGLAS MYERS:** Thank you Sherman, very civil for a hired gun, don't you think. The next group, please.

**MR. RICK GILBERT:** My name is Rick Gilbert and I am representing Group No. 8. If you recall, earlier this morning, I think, somebody made the comparison between co-opting and cooperation and I am living proof that there was no successful co-opting in our group. Try as I might, I couldn't co-opt anybody to represent us, so here I am, I am the designated facilitator, as well as rapporteur.

Starting off with a couple comments from our group, I am not sure this represented consensus, but it was a point that was made within the group in that it may not be practical to strive for a single conservation strategy or single

concept of sustainable development, but within individual mandates of government, private sector and business that there would be a need for a series of policies or programs in sustainable development that we, perhaps, all had to work with in our own areas of responsibility.

A somewhat fairly specific comment within a conversation on recycling was the question of, are there markets for recycled goods and where there are not markets, who is responsible for developing markets? We didn't really answer that, but we did pose it as a question.

We talked for a while about the need for provincial land use policies to guide municipal planning. We talked about the existing structure, the deputy minister's committee on land use policy, and commented that is essentially a government program without a great deal of input from other sectors. I think the intent or the feeling was that was a weakness in that particular program. Also, within that, there was a need for an integrated data based management that we are all using different mapping systems, different mapping scales. The opinion of one of the speakers, was that there isn't an integrated and available GIS system, for example, so that was, in a sense, a mechanism through which we could better develop a program of sustainable development were those resources in place.

The final comments were about education. We talked about the need for grass roots education at the worker level, for example, so that the individual tree cutter is better able to make decisions about whether or not to cut a particular tree or whether to let that tree stand for environmental reasons. That was one educational aspect. Another was one that has come up before, which has to do with the school system and establishing an environmental education curriculum within the school. We, as well as some of the other groups, talked about a general public, we didn't use the example, but I suspect it would be a suitable example, the participaction model.

We did, also, come up with at least two, which I will mention, fairly specific projects or ideas that might be worthwhile pursuing. The first was in the area of waste reduction. Actually, one idea applied two different ways. At the commercial- industrial level, it was suggested that we look at establishing an approach that would charge something close to the real cost for tipping at sanitary landfill sites. The example that was used here in metro, we were told that the charge is $15 per ton, the actual cost, all things considered, would be closer to $45 per ton.

Further to that, it was suggested that, in a sense, if that is the stick, then the lollipop would be a financial incentive program that would encourage industries to eliminate or reduce the amount of waste that they would be bringing to the dump site. So, in a sense, any revenue, perhaps, from the $45 per ton charge would be turned back to the companies in the area of research for waste reduction. At the domestic level, it was felt that we should experiment with the program of financial penalty or a levy for non-sorted waste. Related to that, as well, we talked about more than two bags of garbage, there will be a charge to take it away.

The second idea was in the area, I guess, of alternative energy sources. It was suggested that the Nova Scotia Power Corporation establish as a spinoff or subsidiary company that would promote and develop alternative energy sources. We didn't get a chance to develop that one very fully, but we thought, rather than, in a sense, have the NSPC in competition with, for example, wind and solar power, why don't they get into that business themselves as a subsidiary.

I think that is, perhaps, the end of the report from Group No. 8.

**DR. DOUGLAS MYERS:** Thank you, Rick. I think we will proceed as quickly as we can to finish the group reports and then, perhaps, have a few minutes for general discussion.

**ANN:** My name is Ann and I am reporting for Group No. 7. I know your brains are having trouble with all this information. We seemed to talk about everything that everybody else talked about, but I have put it on an overhead to help you. We started out by talking about all the sectors that have to be involved and we felt the sectors would have to be involved in change, empowerment, partnership and leadership and that we couldn't rely on one sector for any one of those things.

We also felt that one of the first things that was important to do was to create a vision for where we wanted Nova Scotia to go ecologically. This meant assessing the current situation and assessing the potential we have in our province, in essence, coming up with an idea, what do we want here? To follow through on that vision, we would have to have a commitment to it, we would have to have quantifiable and identifiable targets. We would have to be able to priorize those targets and say, which ones are more important. In that, there would have to be some guidelines for industry. There was a lot of discussion in our group about industry not knowing how to act, what is the correct way to act.

After the vision, we felt there was a great need for education, that has already come up, but we talked about it specifically in the area of getting changes in skills, knowledge and attitudes. In other words, I think one participant in our group brought up the example of his son who was getting all kinds of environmental education in school, but still wanted to buy endless supplies of Nintendo games. Knowledge about the environment would have to be linked with changes in values. We felt it should be directed at all sectors, schools, teachers in particular, industry, the general public and we need to have a plan for the implementation for those education programs.

We talked about the need for political will. There were some members of our group who worked for the government and felt they were well informed, but there had to be a well informed political level that wanted to make change. We talked about the need for citizen input and action, that citizens have to be a part of all this, and we did talk quite a while about the need to be able to assign environmental cost to actions. This was brought up in different ways, for example, in the herring fishing where the roe are harvested and the rest of the fish are dumped into the water. Maybe, if there was a charge for dumping those herring, people would reassess that activity.

All that lead us to what our idea of a strategy was and that was the need for an overall environmental plan that integrates the environment into every policy. To do that, we need a networking system, small working groups with common interest to examine issues and, I guess, a plan for making the plan. I don't know, we kind of got lost there.

In terms of examples of what sustainable development is happening in Nova Scotia, we were kind of running out of steam. We did come up with a few things that we felt were along the right ideas in terms of approaches. For example, we thought the integrated pest management in the Annapolis Valley was a good ecological approach to science. We had Mr. Comeau, from the Nova Scotia Power Corporation, in our group and he was talking about the environment being part of all their management plans. We liked that as a management approach. I work on a project called the St. Mary's River Forestry Wildlife project which involves industry, federal government, provincial government, Wildlife Habitat Canada and a community group and we talked about that being a very good institutional approach, cooperation between institutions.

There was some discussion of land restoration after strip mining, whether that was sustainable or not, it was something we could not resolve. Another example was the Nova Scotia Salmon Association, a community approach, going to the Margaree and closing the river to salmon fishing a few years back has now created a viable salmon fishing industry there and tourism attraction. We thought Clean Nova Scotia was a good example of a citizen approach, they were involved in education, they were involved in working in partnership with a lot of people and we really only had a small amount of time to address two examples. Is there anyone from Group No. 7 who would have anything else to add, I went through that quickly.

**DR. DOUGLAS MYERS:** No, I don't think there is. So, I will ask the next spokesperson from a group to report.

**MR. FRANK FAWSON:** My name is Frank Fawson and I was with Group No. 10. I have some overheads here, but I will go through this quickly because, I think, pretty well everything has been said by people before me. Starting at the end with some examples of things taking place in Nova Scotia, we didn't come up with very many good ones, there was some recycling, a little networking and the Nova Scotia Environmental Assessment Act was questionable.

We had a fair bit of discussion about developing a mechanism to incorporate the real environmental costs/benefits into product costs. We reached no consensus, conclusion or solution on that, it seems to be, maybe, the real problem that we are addressing here today and tomorrow. We talked a lot about education and tied that in with networking at the grass roots level, although it was said that education in our school system will have to be dealt with on a provincial basis to get proper coverage across the province. We talked about research and development incentives, tax incentives and market incentives for Research and Development.

The idea was already discussed that the Government of Nova Scotia should develop a sustainable development plan and we added to that there should be a mechanism in place to speed up its implementations so that it could be put in

place as quickly as possible. One interesting thing that came out near the end, as we were rushing along, was that there should be some consideration given to where our funds are being allocated, for example, to clean up of existing problems or whether they should be allocated to turning the tap off at the source. That's about it.

**DR. DOUGLAS MYERS**: Thanks Frank. Well, it would take a braver person than I am to try and sum up this wide range of comments and views. Luckily, we have tomorrow to reach consensus on this. I wonder if there are any people who would like to make a comment about central themes or gaps in what has been reported and I wondered if I invite the two first rapporteurs, who I thoroughly intimidated into taking about 30 seconds each, if you would like to comment on any of these?

**RAPPORTEUR**: There were a lot of areas where we overlapped and there are just a couple things I would like to add. One, we thought of using quality of life as a bench-mark versus endless economic growth. The fact that development doesn't have to mean economic growth, it can mean the quality of life is factored into development that will become more focused on our needs versus our wants. I don't think that was mentioned.

Education, we went over a lot about education. Basically, we are asking, what are we teaching our children for? I think that what we have to do is start to place more stress on the value of their environment and we have to start deemphasizing anthropocentric focus. We need a massive educational process that is integrated in all subjects in school, as well as in schools, including corporate education, government employees and the general public.

Watershed management, we thought that should be looked at, also an ocean clean-up to protect the integrity of the food chain and we would like to see more recycling done. We thought, maybe, a 40 per cent recycling by the year 2000, perhaps, looking at alternate uses of waste in industry.

Finally, in terms of taxes, we tossed around the idea of citizens having to pay a tax, say for instance, to help clean up the environment, and we decided, really, that isn't the fair way to do it, that the polluters should pay and if you pollute the environment, you should be responsible for cleaning it up.

**RAPPORTEUR**: The only other comment I had from our group was, we felt all those good intentions in the community should be addressed, in the sense that we have a lot of people wanting to do things, but not necessarily knowing how they should go about doing it. Perhaps the government has a role, there, in supporting in terms of developing guidelines in methodology, for instance, on recycling. Also, there would be a need for resources, but not just dollars, human resources in terms of expertise. We felt that if we had a little bit more strategic planning on the full life cycle of recycling in our communities, we would have more success.

**DR. DOUGLAS MYERS**: Thank you. Finally, can I invite any comments from the floor on any of this? Yes.

**DELEGATE**: There is just one comment I would like to reiterate. I think there is one yardstick that, perhaps, is very important to remember in all this. Whenever we judge any activity or human action, we should ask the question in the long run, is this going to leave the world better or poorer? Some actions, some activities and some industries definitely leave the world in which we live poorer, others build it. I think we need a requirement at the policy level which evaluates whether the world will be richer or poorer as a result of a decision.

**DELEGATE**: Yes, just a question on the type of visualization we were asked to do in these groups, i.e. what kind of a world we would like to see in 2000, I think it is really more of a question of what kind of world will actually be in the year 2000 and how to avoid it being quite that bad. I hate to leave it on a note of gloom, but really, it is kind of silly to try to visualize Utopia, what we really have to try to do is visualize some sort of Armageddon environmentally, I suppose, and try not to get there.

In other words, look at the worse case scenario, for a change, just to give us a little bit of motivation to make the radical sweeping changes we really have to make, rather than see what we actually are capable of now in our present mind set. Then, see that as paying a debt against this worse case scenario so that it doesn't have to be quite that bad, because it is going to be bad and we know that, regardless of what we do. But, how bad it is depends on what we do now and I think you have to do negative visualization, I am afraid, and then try not to get there.

**DR. DOUGLAS MYERS**: Well, that is an interesting comment because several people have referred today to ways of taking this seriously, both optimistically and pessimistically. I think, maybe, that is a good place to wrap up and begin again tomorrow. On your behalf, I would like to thank the rapporteurs and, I think, the groups, clearly, this afternoon struggled to pursue some of the lines that Ray Côté outlined earlier and some of the larger issues that were put before us this morning. So, thank you very much, for, I think, this was an excellent first day. We will see you tomorrow when we will sort out all of this. Nobody said it would be simple. Thank you very much.

*( Sessions Conclude for the Day )*

## Reception and Dinner

## Introductions: Allan C. Shaw

*Chairman, Voluntary Planning; Chairman and Chief Executive Officer, L.E. Shaw Limited; Chairman, Clayton Developments Limited; and Director, L.E. Shaw Limited and Subsidiaries. Mr. Shaw was a graduate of Harvard Business School and Dalhousie University.*

*( Speaker Introductions )*

## Guest Speaker: The Honourable John M. Buchanan, P.C., Q.C.
## Premier of Nova Scotia

*John MacLennan Buchanan was elected Premier of Nova Scotia in 1978. He was re-elected in 1981, 1984 and 1988 - becoming the third Premier in the history of Nova Scotia to be elected to four consecutive terms. Mr. Buchanan graduated in 1954 with a Bachelor of Science Degree and Engineering Certificate from Mount Allison University. He then attended the Nova Scotia Technical College in the Metallurgical Department and later graduated from the Dalhousie University Law School. Mr. Buchanan was first elected to the Nova Scotia Legislature in 1967, representing the constituency of Halifax-Atlantic and, in 1971, he was elected leader of the Progressive Conservative Party of Nova Scotia.*

Thank you for allowing me this opportunity. I would like to personally welcome each of you to this conference and to thank you for the effort I know you will put forward on behalf of Nova Scotians. As well, I would like to thank the organizers of this conference who have worked so hard in making it a reality.

It is not an easy task to meet what is undoubtedly a complicated challenge: to ensure that economic growth and development may proceed without harm to our natural gifts and amenities.

A document that approaches the significance of a global constitutional statement, has set the tone for the debate now in progress that may be as important as the Magna Carta or the United Nations declaration of Human Rights.

The report of the World Commission of Environment and Development has changed our lives. It called for a new era of economic growth based on environmental safeguards. It declared that "Humanity has the ability to make development sustainable, to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs".

The reality of our times is that environment is the crusade of the coming century; the implications of a polluted atmosphere, poisoned seas, and forests turned into unproductive deserts are too frightening to be ignored.

We hear calls from all sectors of society to respond to this challenge, to reverse the destructive overuse of our renewable resources. We need to respond, to make an immediate start on substantial course of action.

As we enter the nineteen nineties, described by the World Watch Institute with commendable optimism as the "Turnaround decade", we are making our own commitment. In the spirit of tidying our own house first, we can as Voltaire said: "Cultivate our Garden."

In focusing our attention on environmentally sound development in Nova Scotia, we are conscious of the immediacy of this problem to the future of our province and its people.

Sustainable Development will make a substantial contribution to the overall campaign to conserve and replenish our environment. It will help us to hold the line against further degradation of natural values and mark a major step toward renewal.

These are difficult questions to resolve regarding Sustainable Development. How will the concept be measured? How will it be applied most effectively and will it achieve the environmental safeguards we are determined to have in place as quickly as possible?

The suggestion has been heard that Sustainable Development may not be enough, that it is a contradiction in terms. Even if that pessimistic viewpoint is highly exaggerated concern, worst case scenario, that is all the more reason for us to redouble our efforts.

It should be kept in mind that while Sustainable Development is of major importance in our overall effort, there are many other positive initiatives that will also contribute to conservation and preservation. But to achieve these goals it may be that radical changes will be required in industrial processes, and the way we have come to live is this all consuming or disposal society.

If we are to believe scientists and their predictions, there may only be a modest cushion of time between theory and action if substantial progress is to be achieved. The luxury of leisurely discussion and debate is gone.

At the Toronto conference on the atmosphere last year, the Prime Minister of Norway, Gro Harlem Brundtland, called for a new political approach to environment and development; one in which economic and fiscal policies, energy, agricultural, and other sectoral divisions will induce development that is not only economically but ecologically sustainable.

I am confident that this political approach to environmental policies is being put in place by most countries, certainly by Canada. This meeting illustrates I believe, the strength of commitment by the government and people of Nova Scotia.

As I have already said, there are many other positive initiatives that will help us in our endeavour to protect and preserve our natural resources. Reuse, Waste Reduction, Resource Recovery and Recycling programs will be encouraged in

this province and supported in order to both reduce waste discharges into the environment and to promote the more efficient utilization of our environmental resources. We have already given royal assent to Litter Abatement and Recycling legislation in response to this issue as well as programs and policies aimed at addressing other issues confronting us.

We have just completed the first successful season of our Youth Conservation Corps, a program designed to further environmental enhancement in Nova Scotia through clean up programs and by providing youth with skills they can carry through life. Through this program, we are creating a new generation of environmentally conscious Nova Scotians who will teach their children the same values that have been passed on to them.

In the past year, a Nova Scotia Round Table on Environment and Economy was formed specifically to advise government on programs and policies to link environmental and economic decision making within the province. The results of your deliberations will prove to be an invaluable tool to the members of the Round Table.

We have proclaimed Environmental Assessment Legislation in this province which will ensure that environmental considerations form part and parcel of any significant development projects as defined by regulations.

We are working very hard to correct what has gone wrong. The Halifax Harbour Clean-Up, the Sydney Tar Ponds Clean-Up and the upgrading of sewage treatment facilities along the Annapolis and Cornwallis Rivers are just a few examples.

You may have noticed that you can't pick up a newspaper today without reading at least one story on the environment. Well, a recent article said that by 1988, environmental consciousness had broadened into global anxiety.

What that statement tells us is that although we recognize the need for programs and policies, we cannot think about our own regional problems within a local context. The folly of that approach may be seen in such events as that of a lonely barge, transporting a cargo of garbage from the United States in a vain search for a country that would accept it. The St. Basile chemical waste also enjoyed a return ticket between Canada and the United Kingdom.

This conference is all about pointing the way toward a sustainable development strategy. We are aware that remedial and protective measures will cost money, but they will also create jobs and business opportunities. There is an extra incentive for all of us, in the knowledge that there will be this other positive side to this monumental campaign of conservation and renewal.

These benefits will become reality when the dimensions of economic growth are tailored to the reality of environmental imperatives.

Public awareness of the challenges associated with conservation and renewal is highly persuasive: governments, corporations, institutions, and citizens know that responsibility lies with ourselves.

You have the opportunity to begin the process of initiating a sustainable development strategy for this province, to identify our common purpose, and to propose active partnerships that will help us achieve our common goals.

That is really the bottom line in your deliberations and there is nothing inconsistent about it. I am convinced that we all share in this commitment to sustainable development. We look forward to the results of your discussions.

Thank you.

## Tuesday, October 17, 1989

## SESSION III

### Session Moderator: Janis Raymond

*Ms. Raymond has a Masters Degree in Economics from Dalhousie University. She has worked with the Nova Scotia Department of Fisheries for 10 years in several capacities and for the last 5 years as the Director of Marketing Services. She is a native Nova Scotian whose family has been involved in the fishing industry for 3 generations.*

I would like to welcome you to day two of this conference. It is my pleasure to introduce our keynote speaker, Roy Aitken. *(Speaker Introductions)*

### Keynote Address: W.R.O. (Roy) Aitken

*Executive Vice-President, Inco Limited. Mr. Aitken joined Inco in 1970 as Technical Assistant to the Vice-President and Chief Engineer, having left the position of Chief Engineer at Imperial Paper Mills Ltd. in England. His formal education was received from Glasgow University and the University of Western Ontario. Mr. Aitken is a Director of the Mining Association of Canada, Director of the Canadian Committee of the Pacific Basin Economic Council, and Chairman of the Asian-Canada Business Council. He served as Vice-Chairman of the National Task Force on the Environment and the Economy and is currently a member of the National Round Table on the Environment and the Economy.*

Good morning. I am very happy to have this opportunity to participate in our conference entitled Building Partnerships for Environmentally Sound Development in Nova Scotia. I understand the focus of this conference is intended to deal with issues in Nova Scotia but I hope you will excuse me if I broaden the base just a little bit. That does not detract in any way from a Nova Scotian initiative, it simply recognizes the fact that what all of us do in all of the provinces is important. We are talking here about issues which are national and in fact international in scope.

A couple of months ago I had the opportunity to speak at the Cuttigen Conference and the subject this year was the environment, what else? Every conference this year is the environment. I spoke upon it on a panel which was given the topic, "We Are All In This Together", and that was another piece of partnership building. At that conference, I quoted from a recent article in the Economist magazine. Now that is not a magazine that is noted for its views on environmental affairs. However, given the growing interest in green movements around the world and the sudden interest and awareness on the part of some unlikely characters ranging all the way from Thatcher to Shevardnadze given the

form of a national government in Holland on a green issue, the economists decided it was time to take an interest in this debate.

In a special supplement they noted what defence has been to the world's leaders for the past 40 years, the environment will be for the next 40 years. An intractable exercise in national self-restraint where gains depend less on what individual countries do, than whether many countries trust each other and will work together, what the world has learned from 40 years of discussing defence is that no country will disarm unless it trusts its opponents to make an equal sacrifice and no alliance works if some countries feel their allies are getting a free ride. These principles apply to greenery too. Now that is the view of the economist. The message, I think, is clear. We are all in this in that if we don't all hang together, we will surely hang separately.

So this conference is timely and the topic is well chosen and business is very much involved in being part of any partnership. As Tom Dakin, the President of the Business Council and National Issues said recently, there can be no solution to the environmental problems of the world which does not involve industry. Today that is a fairly obvious statement and yet only a few years ago industry was totally shut out of the debate and frankly it was quite happy to be shut out. We had lived with a steady diet of adversarial rhetoric for years. We went through the period of the 1970's when the Club of Rome in Limmis de Groth was telling us that the world was running out of resources and we must stop development. Well industry didn't believe that then and we still don't believe it today because the world doesn't have to be running out of resources.

The nature of our industrial activities is changing dramatically at a pace which would have been difficult to comprehend four decades or five decades ago. Whereas during the early part of the industrial revolution, the objective in most technology development was to increase the rate of production and to provide more of whatever good was being manufactured. The past 50 years or so has seen a switch towards technology development in that increasing the efficiency of operations and that means, among other things, to provide more from less.

We have all seen examples of this, perhaps most dramatically over the past years or so in the downsizing of automobiles. That is a more efficient use of our resources. There is a long way to go but a start has been made.

The three R's of environmental conservation, reduce, reuse and recycle are becoming more and more widely applied. The motor car, I think, typifies the reduction concept. In terms of reuse from one sector of my own industry, the great example is the recycling of gold mill tailings where the tailings grade is in fact higher than in many of the new mines being developed around the world.

Recycling has caught the imagination of the public and campaigns to separate and collect old newspapers, coke cans, bottles and some types of plastics are springing up widely. Substitution, which has been going on since the Stone Age, is alive and well. New technologies are allowing the development of resources which were totally uneconomic only a few years ago.

In my own company's core business, nickel, we estimate, for example, that known reserves of land-based nickel would satisfy the world's demand for the next 200 years. Now that is not a long time really in the history of mankind but then we have the oceans and the oceans are estimated to contain reserves good for 10,000 years. Before then we are likely to have seen another ice age and that would change the nature of society very dramatically. We certainly have seen different technologies providing new opportunities.

Then, in the final analysis, like it or not, this planet has a finite life. One day, albeit a billion years or so away, the earth will burn out so I reject the notion that we have to run out of resources. Having said that, I believe that is a very good thing because the fact is that the concept of zero growth won't work. It was the outcome of a somewhat self-centered, selfish, academic, developed-world debate and the Third World, which did not participate, 80 per cent of the world's population has no interest in zero growth scenarios, even if we had. Two years ago, when the Canadian delegation to the United Nations tabled the National Task Force Report on Environment and Economy, Rajiv Gandhi, the President of India, said in very simple words, don't tell my peasants not to cut down a tree. That is the only way they know how to cook their rice. That is reality.

Since then, Robert Mugabe of Zimbabwe has said, don't tell those of us in the Third World to stop developing because it is polluting. You people in the developed world polluted it and if you want to clean it up, you can pay for it and until you do, we are going to carry on doing exactly what we are doing right now to improve the standards of our people. That is reality. Anyone who does not understand that is out of touch.

So development is going to continue. The trick is, it must be sustainable. That is where I find my assigned topic, Sustainable Development and the Bottom Line, particularly interesting. I believe there is an implication here that the bottom line can only be addressed by a business person. Well I have news for you. All of us had better start recognizing the importance of the bottom line if we are to achieve the goal of sustainable development. It is probably fair to say that until a few years ago, those involved in the environmental debate, principally members of activist groups, felt that there was something crass, commercial, perhaps even dirty about the bottom line whereas the environment was above and beyond it. Profit and even cost had no place in the thrust towards a cleaner environment. Well that is not reality.

I have a quite different perspective and happily, I believe, general public understanding of the position is moving towards my view. The opinion polls tell us regularly today that 80 per cent of Canadians place the environment as the number one top of the mind issue in their day to day lives. When that happens, we are not longer dealing with an elitist or esoterical theoretical debate, we are dealing with a national crusade. Those same people who say that this is the number one issue, acknowledge that they are prepared to pay something toward seeing the environment improved. That means that they are ready to see impact on their personal bottom line.

Now I am not knocking the environmentalist movement when I say those last few words. They deserve enormous credit because the growing understanding that

has come about because of what they have done is simply the result of an enormous job in sensitizing the public to what is happening and also sensitizing the media which likes this topic. Media can use it to belabour everyone in authority, whether they are in politics or in business, to do things differently. They have enormous power, in particular television which brings into the home pictures of dead whales in the St. Lawrence, PCB fires at St-Basile-le-Grand beaches closed in Toronto, images which have enormous influence. A two second clip of an oil-soaked baby seal on the national news has the power of 1,000 editorials in the Globe and Mail, le Devoir or even the Chronicle.

These pressures are real and they are influencing people's priorities. The social agenda of the 1960's and 1970's may just be in process of being replaced by the quality-of-life agenda of the 1980's and the 1990's, and environment is right at the top of the quality-of-life list. Business understands this. We have listened to our politicians express themselves in election campaigns. The Prime Minister said that we stand for a safer, cleaner environment. A re-elected Conservative Government would vigorously enforce environmental protection laws, offenders will be prosecuted, polluters will pay. The Leader of the Opposition said that we will get tough with environmental offenders. Those who abuse our environment will be liable to pay for the clean-up along with heavier fines and possible imprisonment. The Leader of the NDP said that the program to prevent further environmental damage includes putting crimes against the environment in the Criminal Code.

Now these political views inevitably flow into legislation and business has watched, with some measure of dismay, the growth of regulation, much of it punitive and the sharpening of enforcement policies. The Supreme Court of Canada, for example, has determined that pollution offenses are public welfare offenses. So it is not necessary to demonstrate intention or recklessness in the breach of the Environmental Protection Act before a conviction can be registered.

Obviously, business has a problem here. It has no interest in being regulated out of existence because that would be the ultimate managerial failure so we are responding. It is for this sort of reason that you hear DuPont's new Chief Executive Officer saying that he is not only the CEO, he is DuPont's chief environmentalist and he should be because he is the man who has to embrace the task today of being part of the solution while at the same time not shortchanging his shareholders. He must see the environment no longer at the margin but as a core value in business and the costs of it, and there will be costs, must be internalized.

But shareholders are not complaining. I have not yet heard of a shareholder revolt against an environmental clean-up program. They see the options as unpalatable and unacceptable and we are in fact seeing the greening of the stock market as well as the greening of the board room.

Well then, does this suggest that business moves only because it is regulated or forced? Is that the bottom line motivator? I think not, because one of the problems of regulation is that at best it establishes a minimum standard and in the process regulations frequently generate a reactionary, resistive attitude. Regulations can, in fact, slow down the process. You get legislation-

induced paralysis. What is required is a real motivator and business does need a good motivator because business is not designed as an altruistic organization. Businesses can be altruistic but only those which are consistently successful act in that way.

And how is success measured in business? It is measured by the bottom line and the bottom line is the number one business motivator. So we need to find ways to enhance business opportunity to improve upon the bottom line, that is if we are to develop the level of healthy self-interest and that is a motivator which gets us all going.

Now, while business was facing issues of shut-down or reduction in growth strategies, the motivations were all negative. Then along came the concept of sustainable development, one which has revolutionized the outlook on the environmental issue for us. So what exactly does it mean? That may be the most commonly asked question in the whole environmental arena these days. That is perhaps because it is the last in a long line of additions to the English language vocabulary which have occurred in the last 20-odd years. If you think back 20 years or 25 years, there are a whole series of words which were virtually unused in those days, simple words like acid rain, biodegradable, PCBs and dioxins, drift nets, recycling, greenhouse effect, and even Ministry of the Environment.

Sustainable development certainly wasn't in the dictionary and perhaps because the need had not yet been recognized, the concept had not been enunciated. Then along came Brundtland, to be more precise, the United Nations World Commission on Environment and Development, chaired by Madam Brundtland, a group of scientists, diplomats, politicians, lawyers, representing all the major regional and political blocks, and they toured the world and they analyzed the nature of the environmental problems we are facing. The report was a landmark document for one reason and that is it launched the concept of sustainable development. They defined it as development which meet the needs of the present without compromising the ability of future generations to meet their own needs, beautiful words but a sweeping generalization which really doesn't tell you too much. There are lots of people with questions about well, what exactly does that mean?

On Canada's task force, we try to take the definition a bit further and we describe it as development which ensures that the utilization of resources and the environment today does not damage prospects for the use by future generations. We went on, the core of the concept of sustainable development is the requirement that current practices not diminish the possibility of maintaining or improving living standards in the future. This means that an economic system should be managed to maintain and improve our resource and environmental base so that the generations that follow will be able to live as well or better.

Sustainable economic development does not require the preservation of the current stock of natural resources or any particular mix of human physical or natural assets, nor does it place artificial limits on economic growth provided that such growth is both economically and environmentally sustainable. Sustainable economic development implies that resources in the environment must

be managed for the long term, taking into account that possible value in the future as well as the value now.

Too many words but the concept of sustainable development is important because it is this concept which has opened the door for business and industry to enter into the issues of the environment in a positive manner. We have been challenged in a way which had not happened before. We were told that development could go on, in fact that the development had to go on because only through a new era of economic growth would the wealth be generated which is required to break the bonds of poverty which forced Third World developing countries to environmental excesses.

But development had to be clean. Well, we can handle that. We do not build with 19th Century technology any longer. Clean plant design is a norm. We know that we can do things better than we have done them in the past and in that sense, incidentally, I have a certain problem with a sort of fixed definition which people like. They tend to become cast in stone like the laws of physics that are immutable. I prefer a more dynamic approach, one which says that we must do things better than we did them in the past, we must do things in a cleaner way than we did them in the past and we know that we can do things better and we know that we can do things cleaner and that challenge goes on forever.

However, having accepted the concept of sustainable development, business knows that there will be costs and we must be ready to accept those costs. There is no magic wand which will eliminate the fact that we are going to spend money to achieve sustainable development because the fact is, until very recently, we have all used the environment as a free good. There is no particular reason why anyone should expect anything other than that but the free ride is over and we are going to have to function differently in terms of generation and disposal of wastes and conservation of resources, both at the individual and at the corporate level. All of our bottom lines are going to be affected by this.

There may be money to be made out of environmental improvement by some and perhaps the most public example so far has been Loblaws, the grocery chain. They saw a marketing opportunity and they took it and I see nothing wrong with that. To the extent that people are able to take advantage, I wish them luck. Overall, however, there is going to be a net cost and it is a cost that is going to be shared, in the long run, by all of us and there is nothing wrong with that. In fact it is very appropriate.

Those of us in business know the extent to which we contribute to environmental degradation. We also have some knowledge of what must be done. We know also that there can be no solution without our participation and we know that we are going to pay. There must, however, be equitable treatment for all in this. The individual citizen must come to understand that he too has a responsibility because in many respects, it is the individual who creates the demand. Individual citizens, perhaps typified by the baby boom generation, like the idea of sustainable development. Their support is almost intuitive. They want and expect economic prosperity and they want a safe environment. Just as they voted for free trade in 1988, they will vote for the environment in 1992 and likely by 1996, they will vote for everlasting life if anyone promises that.

But they are a very important segment of our society. They are the generation which will be the leaders, the opinion makers, during this environmental decade of the 1990's which we are approaching. Fortunately, they want to contribute. They may not like tax increases but they may live with them and they will because salving the conscience with blue box recycling campaigns is not enough. We are a wasteful society in terms of power consumption and sooner or later power costs are going to go up significantly. Electricity authorities are going to say you have to pay a bit more for your power units because we have to generate in a clean fashion and they will pay and this will happen because it is easy to pass on the cost when you are a government regulated monopoly.

Incidentally, since I wrote these words, B.C. Hydro has made application for a 9 per cent increase in its rates over the next 18 months. Its average increase over the past three years has been 1 per cent per annum. The CEO of B.C. Hydro says this is a policy-based decision, it is not financially based. They are not looking for more money, they are trying to convince the customers to cut down their consumption, switch off the lights, conserve energy because B.C. Hydro knows that if they do not do something to change the patterns then we are going to see more hydro dams and more problems and you can expect to see more of that in energy use broadly across the country.

Much more difficult in the resource-type industry switch, deal in world markets, there an increase in price places companies at a competitive disadvantage and they risk losing business. The easy answer then is, well, let's get some sort of subsidy from government. You can't. Subsidies in world markets are going to attract GATT sanctions or free trade countervailing actions. It won't work. So the answer has to come through cleaner, more efficient technology and yet there is a school of thought that says technology got us into this mess so you cannot trust the scientist and the new technology to get us out. I don't buy that for one moment. Shutting off technology would be even more dangerous than shutting off growth.

Far from shutting off R&D, this is, in fact, one activity in which government can help and can avoid sanction-type problems. We all know that every poll that is taken in this area says Canada doesn't spend enough money on R and D but if governments really got behind R and D, focusing funds that are presently directed to it to environmental research and development, increase the amounts that are available or make the terms and conditions more attractive for environmental projects, focus the efforts and new technology would be developed which would allow companies not only to clean up but to do it efficiently and more cost effectively.

The other advantage of this approach to use of government funding is that by participating in the R&D, government then has rights to the technology, rights which it may wish to make available to Third World countries and they may have even more need than we may understand today. New technology may just help them to leap-frog some of the dirty years of the 1900's.

I am particularly interested in this R&D approach because in the case of my own company, we spent more than $100 million over the period from the mid-

1970's to the mid-1980's developing new technology to allow us to deal with sulphur dioxide emissions from our Sudbury smelter. For many years, as you know, INCO was known more as Canada's number one polluter than as the number one nickel company of the world. We knew about the problem we had but technology to change effectively comes slowly and expensively.

Let me just sort of recap some of the history. We started mining nickel at the end of the 19th Century. The process then for recovering the nickel was incredibly crude by today's standards. It did an enormous amount of damage to the natural environment. The first step after mining the ore was to crush it, spread it on top of piles of cordwood which had been cut from local trees as fuel, then set the bonfire alight. The heat burned and smouldered for three months to four months with the sulphur in the ore being driven off as sulphur dioxide. This rolled in clouds across the landscape and killed off most of the remaining trees which hadn't been cut down to make the fire. That process went on until the end of the 1920's. Incredible, isn't it? But that was the way things were done and that was called state of the art.

Then we built our first smelter. That smelter was designed around reverberatory furnaces. They are more efficient in terms of metal recovery. Initially we fuelled the furnaces with pulverized coal. Then in the early 1970's we switched to fuel oil, then to natural gas and then to oxygen supplements. Each of those steps improved the efficiency of the furnace and at the same time contributed a little to reduction of pollution.

Then we developed what is known as the oxygen flash furnace. In this technology, we take advantage of the fact that a finely divided sulphide concentrate injected into a stream of commercially pure oxygen combusts spontaneously and the heat release is sufficient to smelt down the metal. You do not need to add any additional fuel. That is the most thermally efficient furnace in the industry and clearly it helps the bottom line. What it also does is produce sulphur dioxide in a very high-strength pure-gas stream, ideal for collection and conversion to sulphuric acid. That is probably the most commonly used reagent in the chemical industry.

So instead of emitting a waste product, we have now taken it out of the atmosphere and have generated a useful by-product. In addition, since we add no additional fuel, there is no carbon dioxide generation and we all know now about the problem of greenhouse gases. A further spinoff is that by using pure oxygen rather than air, there is no nitrogen introduced into the furnace, so we do not produce any oxides of nitrogen. Everything that is done in the furnace, improves the efficiency, makes it a better bottom line concept and at the same time improves the environmental performance of the smelter. There is another by-product. We have sold the design to two U.S. copper mining companies and we are seeing a lot of interest from other smelters around the world so it makes money out of technology. We think that is quite a success story.

We have got one other product of R&D underway too and that is a program to reduce sulphur dioxide emissions further using the magnetic properties of one component of the mineral that we mine, that is an iron sulphide called pyritite. We separate it magnetically and stockpile it before it even reaches the smelter, so no gas is generated. If you can separate it out, you do not have to melt it

down, so that becomes more efficient and it also becomes cleaner because you have deposited sulphur in the solid state. The material carries with it about 1 per cent of nickel and that is a valuable resource, but we do not know how to get it at this time, so we are stockpiling it. When the technology is developed, which it will be, we will recover it very cheaply and reprocess it. That is preserving a resource for the future and we think that is a tremendous project.

In economic terms, it generates a discounted cash flow rate of return on investment of 25 per cent. Now, that is the sort of project which has the sort of bottom line impact that would say you do it with or without the environment, but in fact the project was environmentally driven.

I mentioned discounting of cash flow. Many environmentalist have knocked that concept as the greatest enemy of the environment, because it tends to write down any benefit which has accrued more than five years or six years out, a simple function of interest rates, whereas the environment goes on forever. Now, there is an element of truth in that, nevertheless, dcf's are a fact of life. They are here to stay because their effectiveness has been proven. We have to find ways of developing good investments by that measurement, because if we do not, then people will put their money in Canada Savings Bonds, there is less risk there.

Well, I have given you a couple of success stories there which have come from R&D activities undertaken over the years. Unfortunately, they are not all as successful in that and that is why some help is needed. Where help is really needed is in small business. These people do not have the resources to go into great R and D campaigns. Frequently they do not even know what the chemistry is that they are dealing with and this is where government should help. They should provide the sort of facilities which, for a fee, will take from the small businessman the refuse he is producing and reprocess or sanitize it. If this sort of capability is not there, what do you think happens to things like spent cleaning fluid from your local dry cleaner?

Governments face big problems here. In Ontario, for example, the Ontario Waste Management Corporation has been trying for something like 10 years and has spent more than $50 million in attempting to get its waste management processing facility off the ground. After all that time, it does not yet have an approved site. Do you know why that is? Not in my backyard, NIMBY, is one of the most powerful forces at work in our society. Somehow it has to be controlled. I am a great supporter of environmental impact assessment, but the legislation is wide open to abuse and NIMBY uses that opportunity frequently. Politicians have to work on this and in some way they have to do two things. They have to get beyond "not in my term in office", and they have to get the public beyond "not in my backyard".

That brings me to the final bottom line and that is the bottom line of the individual citizen. I started with a quote from The Economist which added up to the thought that we are all in this together. Well, that includes the individual who in some ways is going to be asked to change his lifestyle to accommodate what is needed. We need to ask whether our lifestyles are consistent with sustainable development. Are our consumption patterns sustainable or does the issue really become sustainable demand?

Well, lifestyle changes may not be a popular concept, it may be politically difficult, but if the 80 per cent of Canadian citizens polled are serious in their views about the environment and what they want to do in terms of preserving it for their children, then they are going to have to change some of their lifestyle and they are going to have to recognize that it will impact upon each one of them personally. I am sorry, but you cannot dump it all on big business and say, it is your problem, not if we are all in this together and not if we all understand that each one of us has a bottom line. Thank you very much.

**MS. RAYMOND**: Thank you very much for your excellent presentation which provides a very positive background for workshops later on this morning. Next on the agenda, the first of two case studies will be presented by Dr. Phil Read. He will discuss the role of clean coal technology in achieving sustainable development. *(Speaker Introductions)*

## CASE STUDY #1: Dr. Phil Read

***Senior Advisor, Technology Commercialization at CANMET energy research laboratories, responsible for program planning, environmental coordination and business development in CANMET's energy research laboratories. Formerly Advisor, Coal Supply and Utilization in EMR's Energy Policy Sector: responsible for policy and for management of the coal utilization program and similar programs for 16 years. Education: B.Sc. and a doctorate in coal mining from the University of Birmingham.***

### WHAT IS THE ROLE OF COAL TECHNOLOGY IN A SUSTAINABLE ENVIRONMENT?

Two questions need to be answered first:

### IS COAL A SUSTAINABLE ENERGY SOURCE?

It can be treated as a sustainable source. Even if extraction in Nova Scotia reached the highest goal conceivable, say 10 MTPA, reserves would last 200 years and resources could be double that period.

### WHAT COULD MAKE COAL NON SUSTAINABLE?

Accumulation of waste products - solid and gaseous.

| | | |
|---|---|---|
| | ENERGY PRODUCTS | |
| | Useful energy | 3.6 GJ (3.4 MBTU) |
| | Waste energy | 6.9 GJ (6.6 MBTU) |
| | Total energy | 10.5 GJ (10.0 MBTU) |
| 1000 KWH | | |
| COMES FROM | SOLID WASTE PRODUCTS | |
| 360 KG COAL | Bottom ash | 10 kg (22 lb) |
| | Fly ash | 25 kg (55 lb) |
| (BITUMINOUS) | Total ash | 35 kg (77 lb) |
| (800 LB) | | |
| | PRODUCTS TO ATMOSPHERE | |
| | Particulate | 150 g (1/3 lb) |
| | Sulphur oxides | 22 g (48 lb) |
| | Nitrogen oxides | 4 g (9 lb) |
| | Carbon dioxides | 1050 g (2300 lb) |
| | Trace elements | 8 g (1/4 oz) |

**CAN TECHNOLOGY MITIGATE THE EFFECTS OF THESE WASTE PRODUCTS?**

It has been very successful with fly ash. Electrostatic precipitations can eliminate over 99% of fly ash and fabric filters can do even better by capturing a higher fraction of the very small particles (< 2 microns) that precipitations miss.

Technologies currently being introduced can reduce emissions of sulphur and nitrogen oxides but make more solid and liquid waste, amy increase emissions of carbon dioxide and do not contain trace elements such as mercury or arsenic.

Technologies have been suggested for capturing $CO_2$ with other acid gases and using $CO_2$ for enhanced oil recovery while oil-bearing strata act as a scrubber to capture other gases: this involves burning in oxygen and recycling 3/4 of the $CO_2$ to the furnace. It is not applicable in Nova Scotia unless an effective use can be found for large quantities of $CO_2$.

## ARE THERE BETTER SOLUTIONS?

There are no easy answers. There may be better ways to cut down waste products than those currently used but they are generally expensive, need more development, or both. All coal burning creates carbon dioxide and Nova Scotian coal generally contains high levels of sulphur (3.5% on a dry ask free basis is used in all examples).

| | |
|---|---|
| **COAL CLEANING** | Inexpensive; Effective only for inorganic sulphur Chemical/Microbial cleaning is expensive, needs development and treats only sulphur. |
| **FLUE-GAS CLEANING** | SOx scrubbers add 10+% to electricity costs, $NO_x$ even more, create wastes that are difficult to treat, compound $CO_2$ emissions, but can remove 90 - 95% of acid rain precursors. |
| **CLEAN BURNING** | Fluid-bed combustion, slagging burners, and integrated gasification and combined cycle are threshold technologies that can reduce emissions of sulphur and nitrogen oxides at approximately the same cost as scrubbers and make more manageable solid waste. Pressurized fluid-bed combustion or gasification with combined cycle may reduce CO2 emissions. Gasification can achieve e 99+% reduction in $SO_x$ emissions. Fluid-bed combustion is less sensitive to coal quality variation than conventional pulverized fuel combustion. |
| **COAL TO LIQUIDS** | Liquefaction, coprocessing and pyrolysis are more expensive means of treating coal that may prove economic in the future and reduce acid rain precursors substantially but lead to increased $CO_2$ emissions. The high sulphur content of Sydney coal is no drawback for liquefaction or coprocessing. |

## DOES ANY COAL TECHNOLOGY LEAD TO REDUCTION OF ALL WASTES?

Not directly. Efficiency is the most important factor. Compare the wastes of today's coal utilization processes with three potentially more efficient processes, all of which need R&D. The table is based on generation of 1000 kWh from the same coal as above. Process A is the base case. Processes B, C and D are scenarios for 2000-2010. Where 3% of sulphur from the coal is removed (as in scenarios 3 a B and C) it assumed to end up as waste calcium sulphate.

## WASTES ASSOCIATED WITH 1000 KW FROM COAL

| Process | Coal Used kg | Sulphur Used kg | Nitrogen oxides kg | Carbon oxides kg | Carbon decrease % | Solid Waste kg |
|---|---|---|---|---|---|---|
| A | 360 | 22 | 4 | 1050 | - | 35 |
| B | 310 | 2 | 1.5 | 910 | 13 | 65 |
| C | 180 | 0.2 | 0.5 | 550 | 47 | 55 |
| D | 150 | 9 | 1.5 | 420 | 60 | 15 |

Process A — base case - modern pulverized-fuel, coal-fired electricity generated with electrostatic precipitator and low-$NO_x$ burners, no sulphur capture

Process B — near future - pressurized fluid-bed with combined cycle generation (at the early demonstration stage)

Process C — long-term future - integrated gasification, fuel cell, and combined cycle generation (gasification and combined cycle have been demonstrated but not achieved high efficiency at utility scale and integration of fuel cell technology needs research work at bench scale to reach its full efficiency potentially)

Process D — district heating in which 80% of waste heat from conventional generation is used to replace electricity (very capital intensive, needs development of technologies to use waste heat during hot weather), not taking account of heat pumps

### HOW CLOSE ARE THE NEW TECHNOLOGIES TO ECONOMIC REALITY?

Pressurized fluid-bed and gasification of coal with combined cycle generation are at the demonstration stage, e.g., Grimethorpe, U.K. and Daggett, California. More demonstration pressurized fluid-bed systems are very near completion (Spain, Sweden and U.S.A.). Both technologies can meet today's guidelines for emissions of $SO_x$ and $NO_x$ to the atmosphere. Pilot scale systems for use with coal gasifications (proved in Japan) can remove 99.5% of sulphur. This may still be too much sulphur for the fuel cell visualized in scenario C that would bring generation efficiency up to 55%. R&D at bench scale is needed to prove this technology.

More efficient technologies for distributing low level heat are being demonstrated now. Improved heat storage systems are being developed. District heating systems are in everyday use in Scandinavia. Heat pumps that can boost the efficiency of electric heating by factors of more than two are available today. Demonstrations of some components of these systems may be less expensive than generation demonstrations.

The scenarios shown above are merely illustrative. Astute combination of technologies commercially available today may be able to achieve desired results in some circumstances. For instance a combination of atmospheric pressure fluid-bed technology with district heating could produce the following results in winter (compared with electric space heating: comparison with oil-fired space heating would give different results and would need to be calculated before decisions are made):

| | |
|---|---|
| Coal used | reduced from 360 to 175 kg |
| Sulphur oxides emitted | reduced from 22 to 1 k |
| Nitrogen oxides emitted | reduced from 4 to 1.2 k |
| Carbon dioxide emitted | reduced from 1050 to 530 k |
| Carbon decreased | 50% less than base case |
| Solid wastes | increased from 35 to 55 k |

**WHAT IS THE APPLICABILITY OF THESE PROCESSES TO NOVA SCOTIA?**

This has to be decided in terms of Nova Scotia's goals.

- How much electricity will be generated and how much process and space heat will be needed in the Province in the year 2010?
- What level of emissions and wastes can be tolerated from burning fossil fuels at that date?
- What process or combination of processes promises the best means of achieving the above targets simultaneously?
- What would be the impact on Nova Scotia's coal production and allied industries?
- How can community planning be arranged to take advantage of the combined heat and power approach which promises the best overall efficiency and minimization of harmful wastes?

Given answers to these questions (which can be determined through paper studies at relatively low cost) Nova Scotians must make long term decisions, taking the time required to complete development of new technologies and socioeconomic impacts of strategies into account.

Based on these decisions Nova Scotia will be able to participate meaningfully in demonstrations of new technologies to prove their applicability to the specific situations.

**MS. RAYMOND:** Thank you, Dr. Read, you have dealt with a very complex subject in a systematic manner and one which allows lay people such as myself to comprehend the technical possibilities for cleaner power generation from coal.

**DELEGATE:** I have one question for the previous speaker.

**DR. READ:** Sure.

**MS. RAYMOND:** A very short question then.

**DELEGATE:** The question was on fly ash. What is the environmental damage of fly ash and the other ashes produced from burning coal and what new technology is available for using fly ash? Is there anything new on the uses of fly ash?

**DR. READ:** There are a lot of people very concerned with developing various uses of fly ash. I do not have any notes here on the various programs that are going on. I know that all of the utilities who burn coal in Canada are involved in some programs to look at fly ash as a construction material. I would suggest that you get in touch with the Canadian Electrical Association. Their head office is in Montreal and the name to talk to would be Tony Kinsley. I think he would give you answers on who is involved in what programs for effective and clean utilization of fly ash.

**MS. RAYMOND:** Our next case study will be provided by Archie Fader. *(Speaker Introductions)* He will be specifically speaking today about recycling as a profession.

## CASE STUDY #2: Archie Fader

***President of the Society of Nova Scotia and Prince Edward Island Bottle Dealers and Recyclers. Mr. Fader is a former councillor for the County of Halifax and has been interested in recycling for over 14 years. After operating his own recycling business for over a decade, he sold it to pursue voluntary recycling research and to help other recyclers set up businesses. He is currently a director of the Clean Nova Scotia Foundation.***

Thank you. Good morning. As a recycler, this conference is a breakthrough for recyclers in Nova Scotia. At this time I would like to thank Audrey Manzer who I believe is responsible for my presence here this morning. When I said this conference is a breakthrough for recycling, I believe that recycling will have a big role to play in the future development of this province. The recycling program is designed for the year 2000 and in my personal opinion, recycling is here to stay. Recycling was tried a few years ago but it did not succeed, but I now believe, with the information and the response of the people who were speaking yesterday, recycling is here to stay.

I would like to just touch on certain things. I guess you want to know what the term recycling means. I think that we all are recyclers to a degree. Some of us are serious, some are not, but we all play a role. If you are not a recycler now, you are a potential recycler. As you are all aware, in the Province of Nova Scotia we are a province of many lakes and rock. I feel that we have to look at our landfills and treat them for what they are supposed to be, a landfill. As you are well aware, 73 per cent of what we are depositing in a landfill today can be recycled. Approximately 27 per cent is solid waste.

I think that we, as recyclers, the small businessmen of your province, need some support from the municipal and the provincial governments with respect to policies. When I say policies, I am looking for policies that will force us to carry out a program of recycling to process the material and find markets for the material. I would like to make another important point about recycling; if appropriate policies are not established, recycling will not be viable.

You heard the Premier or someone earlier last night mention that we are a province of 900,000 people. If I can compare our population to the City of Toronto although I do not know what the population of Toronto is, but I am afraid that if a population the size of Toronto and its urban areas occurred in Nova Scotia, I think we would have a problem dealing with that much waste with our present disposal practices. We must realize that something has to be done now. I think that this conference is very important and I hope that we will have support in respect to approaching our two levels of government for some policies and direction.

There are small business people out there who are prepared to work and support this program. I don't believe there is anybody yet who does recycling on a full time basis in this province. They generally have another type of business to support their recycling endeavours. I guess you could say, I am in the trucking business. I own highway tractors. I am one of those people that roll up and down the highways with 18 wheelers and this business subsidizes my efforts to promote recycling. I specialize in recycling glass. A year ago, I bought and sold six trailers of glass (approximately 138 tons), by last week we prepared and shipped approximately 23 trailers of glass which represents over 500 tons. This indicates, with a little energy, a little time, and a little promotional work, it will happen.

Now, I suppose the next thing you would like to hear about recycling glass is where are the markets. Glass can be prepared and processed here then marketed in New Brunswick. Cardboard and paper are other important recycling products which are processed in Hantsport in the Annapolis Valley. We have a gentleman in Debert who is buying paper and I don't know if you are aware of this or not, he is the gentleman who is looking after the paper recycling program here in Halifax. Texas is the name of the company. They have an excellent program and they have a need for paper.

Also, I was told the other day that paper is now being prepared and processed then shipped to Quebec. So I understand there was some concern here yesterday about a glut of paper. I think that there isn't a problem. I think the recycling of paper all boils down to the quality of used paper. I think that if the recycler is prepared to process quality paper then there is a market.

I have discussed cardboard, paper, glass. What about tires. I was talking to a gentleman yesterday who indicated he would like to know what he could do with tires. There is a company in Ontario that recycles tires and it has just started here a few months ago. When I was there they had just installed their shredder and were shredding tires. There are many things that can be made from tires. They are now using it for pavement and they are using it for compost. There are many other uses. Anyway, there is a tire recycler in Southern Ontario. He said that anybody who wants to start a program of recycling tires in the Province of Nova Scotia, he has a scow, he has a portable shredder and he will come to Halifax, set up here at our docks and recycle tires. The only thing that we have to guarantee would be the number of tires, unfortunately I'm not sure how many that would be. Like the gentleman said, I think there will be some concern with respect to steel in tires but apparently he has the equipment to do the job.

Oil. There is a company in Debert, I believe it is Inland Oil, who I think has applied through the Department of the Environment to recycle oil. When I say oil, this is motor oil and I guess they will turn it back into diesel. There is a gentleman in New Brunswick who has designed and has working, a piece of equipment which is taking motor oil and is turning it back into number 2 diesel. I believe that he hopes in the near future that he will have a franchise for this process and I believe right now they cost approximately $35,000.

As you are well aware, I recycle tin, somebody showed some concern yesterday about the markets for tin. There is a market in New Brunswick and Ontario for tin. Steel. I guess steel is now being recycled and smelted in Cape Breton. Cast iron, there is already a market in Dartmouth. A company over there, possibly IMP, is buying cast iron in small quantities and processing it for their own use.

It was mentioned yesterday, we have a very good recycling system with respect to beer and pop bottles. Well, that is something that has been going on for years and this is where your recyclers are coming from today. I have been recycling beer bottles since 1975 and since this time there has been a good program in place. Beer and soft drink bottles are one of the types of glass bottles that can be returned and reused.

I do not know if it is safe for me to say this or not but I understand that, in the near future, Consumer Glass in Moncton will be announcing that they will be coming out with a milk bottle that will be recycled. It will require a deposit and upon return it will be crushed, returned to Scodouc, New Brunswick and then recycled.

I guess I know that some of you people here are having a problem understanding the way we should approach recycling. I think that education is the way to inform people about recycling. It would nice if the Department of Education carried out a program at the elementary level because it is at that level where we have to begin. It is unfortunate we have developed into a throwaway society. Packaging, as you are well aware, is another important area that is starting to realize that recycling is important. I'm sure you have noticed the changes in packaging in your grocery stores lately. For example,

the cardboard use to produce egg cartons is changing to a type that can be recycled. There are other things too. I think it has a lot to do not only in our marketing but when we are buying our groceries for human consumption, one way is to check the labels to see what we can recycle and what we cannot recycle before we buy the product.

I guess you are well aware that as our population grows, our landfills are filling. I will not quote anyone regarding the quantity of waste per person we are sending to landfills because no doubt somebody would challenge my quotes. Every town, province and state produces various amounts of garbage, but one thing is for sure, our landfills are quickly approaching capacity. In the province of Nova Scotia we have to take a good long look at our landfill operations.

We can extend the life of our landfills if they are properly managed. I think that is just about all I have to say. I have covered the recycling markets, I don't think there is anything else that I can add. The most important thing I can hope from this conference is to support the creation of new recycling policies. I understand that through the minister, the Honourable John Leefe, and his Department of the Environment, I believe I am told that there are people looking at some sort of a deposit system for different types of returnable items. A central depot will make recycling easier and more cost effective.

Thank you very much. It was certainly a pleasure.

**MS. RAYMOND**: Thank you, Mr. Fader. Your comments were most interesting and encouraging. It is encouraging to hear of the variety of products that are now being recycled in Nova Scotia and the recycling possibilities that can exist. We are running a few minutes late so if you could get your coffee and go immediately to your workshops. Good luck in your workshops this morning.

***( Return From Workshops )***

## Questions Discussed in Workshop No. 2

***What mechanisms can be used to encourage the public, the private sector (industry) and government to promote and implement sustainable development? Consider environmental and economic benefits, constraints, education, trade-offs, incentives and other related issues as you discuss <u>how sustainable development can be implemented?</u>***

**MS. RAYMOND**: I would like to welcome you back from your workshops. I am going to ask the spokesperson for each workshop to prioritize their contributions by reporting to the session on two to three points. I am asking that each spokesperson keep their comments to two or three minutes. This will allow for a 15 to 20 minute period for general discussion after the workshops have finished reporting. It is essential to deal with each workshop briefly because the luncheon must start at exactly 12:30 p.m. So, will a representative or a spokesperson from each workshop please come forward and join me up here.

**MS. COLLEEN MERCER-CLARK**: Ed, if we could have the overhead. We had a difficult and interesting discussion trying to get through and come to grips on the hows of getting into with sustainable development, however, I think a number of things came out. During the course of this last day and a half, we have been all hearing words like commitment and determination and responsibility, all of which are good, solid important words to remember when we are dealing with something like sustainable development. I had some concerns that we were starting to be like Atlas with the weight of the world on our shoulders and we were starting to bend down from this immense task we had to take and pretty soon our nose was going to be to be touching the floor. When a task becomes too great, it is very difficult for the individual to see what kind of role he can play in his own life and in his own job focus and with his own organization.

The conclusion that we came to that we think is really important was for individuals to challenge how they do sustainable development. All our hows revolved around one factor and that was changing attitudes. The challenge to change attitudes is both personal in our own lives and within the society that we live in.

We looked at a number of different topic areas, the first one being education. This became very critical, especially to the representatives from small municipalities and business that they have very little information that enables them to make proper environmental decision-making or to evaluate whether or not sustaining practices are, in fact, viable. They are interested in seeing more resources being put into developing better information gathering methods, to establish what our environments are now and to facilitate this type of information transfer so that they can apply it better within their own areas of jurisdiction.

More cooperation, a change from the previous adversarial roles that a lot of us have seen, moving into partnerships that produce realistic objectives that people can feel good about within their own agenda and that can move on and

provide productive responses from the group as a whole. A situation where resources are pooled rather than used in opposite poles or opposite ends of the continuum. A real need to demonstrate the success of sustainable development. A lot of people mentioned that they were concerned that there are success stories out there but you do not hear about them so that does not give you any kind of an uplift or motivation in your own life. Again, does this thing work, can it work? The demonstration of successful endeavours has to come not only from large industry projects but also from very small industries, from municipalities, and from recycling programs. Getting the word out that, yes, it can work and, yes, it does work and these are ways that it does.

Costs. We discussed costs on a number of different focuses. One of the areas was in relation to a triangle relationship between environment, economy and social needs. The point was raised that we have, in the past, tended to place most of our effort on the economy end of that triumvirate that now we are looking at the environmental end of that triumvirate but that, in fact, what most people are concerned about right now is quality of life and that relates to social needs. How it relates to things like increases in drug problems for our kids and in the quality of the life of the village or town that we live in so that there should be, in relationship to cost, more valuation placed on more equitable dispersion of decision-making relating to those three factors, environment, social needs and economy.

Also, costs are a no-free-lunch situation for most communities so that attention should be given to sustainable development as it relates to existing or new and innovative technologies that can be used to aid environmental protection now and save costs in the future. I know one of my own personal things in the work that I do is that we have a lot of situations and examples in this country where sustainable development technologies have not only been put into place carefully and critically but they have saved costs in both capital dollars on the devalued scheme as well and also in annual maintenance dollars. So sustainable development does not, for industry or municipalities, have to be a net negative cost. It can, in fact, be a net positive benefit.

The final one, which we left to the last, was when all else failed, we need good legislation that provides for effective enforcement and non-partisan enforcement, an enforcement that leads to better conditions as opposed to simply being punitory. That was our summation.

**MS. RAYMOND:** Thank you very much. The next workshop to report is workshop two. It is still in production. How about workshop three? Who is ready? Okay, number seven is ready.

**MS. ANNE COMMOSIE:** My group, I think is going to come up with the most innovative mechanism of the conference and it belongs to Scott Giffin from the Department of Health. His idea is that we should have an Office of the Environment General in Nova Scotia, kind of like the Surgeon General in the United States. This would be a non-partisan position, a spokesperson for the environment. It would be a focus for the media. This person would be an information coordinator. It would be a position of faith and could have a tremendous bearing on attitude change as the surgeon general has been

responsible for in the United States with regard to smoking and exercise and so on.

Tied into this would be a land-use advisory or assessment board that would also be non-partisan, non-governmental and would be responsible for advising the Environment General.

We talked a lot about education. Our third point calls for the development of a provincial task force on environmental education to look at changes in skills, attitude, behaviour and knowledge and we thought that this should encompass adult educators, community educators, schools and in particular, look at education of the media since the polls we saw yesterday showed that most of the information that we are getting on the environment is coming from the media.

I apologize to members of my group because we came up with about 11 mechanisms and I, in the interest of time, tried to pick the most important ones. The fourth one we talked about was regulations at the municipal level, banning certain products into landfill sites, for instance, was used as an example. Open burning in landfill sites is going to be banned by the year 1991 in Nova Scotia and this is an example of a kind of regulation that will provoke change. Contingent with that kind of regulation change, though, we talked about the need for citizen input into those kinds of changes and that is also tied to the education concept.

The fifth area discussed was increasing funding as a mechanism for change, particularly into research and development and this should be directed at monitoring and assessing, impacts on the environment and new techniques for lessening environmental impact. We thought funding should be increased to the Department of the Environment so they could have more staffing and we felt they should be given more political clout within the political structure of Nova Scotia and funding should also go to community groups to help create change from the bottom up.

Our next mechanism for change discussed was the opportunity for more public hearings on the environment. This is also tied to education and change through citizen input.

**MS. RAYMOND**: Thank you very much. Is somebody here from workshop 2? You Is someone here from workshop 3?

**MS. NAOMI BLANCHARD**: We had an excellent discussion led by Wayne Adams who co-opted. There is certainly no such thing as volunteering for Wayne. I want to talk primarily about five main points. The first point that was discussed was in relation to the advisory groups that now exist in the province. A particular example was the watershed advisory groups and how active they have been in advising municipalities and the province around specific issues in watershed areas. It was felt by the group that these should be both perhaps formalized to some extent and those areas where they do not exist, that they should be put in place and the people in those areas made aware of how such advisory groups can work for them in their communities.

The second issue is related to what has already been discussed, public awareness about the environment. There was a real recognition in the group that the environment is not government's problem alone, it is everybody's problem and that everybody, as individuals, can make a contribution and there were some very practical recommendations as to how people could be made aware of their real problem. There was a long discussion about the role of the media and the fact that the media are not portraying the environmental issues as best they can in order to further the cause of environmental improvement and sustainable development in this province.

They felt, for example, that the reporting this morning on the conference proceedings yesterday was really not reflective of the importance of the discussion and that a much greater role should have been made to have the media participate, not just attend for a few minutes. Also, if the media do not do a good job, then people within such organizations should themselves take the lead in providing and writing stories for newspapers, so that the information gets out in a better way.

The third issue was related to the Department of the Environment. The first point was raised that the Department of the Environment in this province has a number of superb individuals who are doing a terrific job, that they are hamstrung by lack of resources, by lack of mandate, by lack of liaison in many respects with other departments, both federal and provincial. The problem is not lack of legislation in many respects, it is not lack of regulation, the problem is lack of enforcement.

The other problem is that the people out in communities do not understand what regulations are, or are not aware of the regulations that exist. The example given was when you want to forward a brook and make a small pond, the fact that you are required to have an enormous number of regulations adhered to when you do that. A number of problems are purely lack of information out there, at the public level and at the municipal level. The problem was also raised at the timeframe required for things to be processed at a regulatory level, with the liaison with Municipal Affairs, with Environment and with other departments.

The fourth issue raised was that there had to be, as part of the public awareness campaign, a recognition of the real cost to the environment, of doing the everyday things that we do. For example, the use of landfills, we do not know what it is costing. Anybody who drives, as I do, to and from Windsor every day, knows darned well that you can smell the landfill site at Mount Uniacke and that has been so for the last three months. So, I know every day what is happening in terms of garbage disposal, but when you get your tax bill in your municipality your landfill cost is not being reflected and it is not made clear to you what it is really costing. There were a number of innovative and specific ideas about how we could do that in a very practical fashion.

The fifth thing, very much related to the role of the Department of the Environment but also to government as a whole, and I refuse to be in a conflict of interest situation even though I work for the provincial government, is that the government should take a lead role in this whole issue, in promoting the environmental awareness campaign at all levels and through all media, improving the knowledge base of the media and, if not, taking care of it anyway. Thirdly,

it should be decentralized, it should be out in the communities. If not, it should be by toll free numbers in order to get better information in the rural parts of the province. In areas, for example, recycling paper, that the government itself should take a lead role in doing that and showing by example the things that have to be done to encourage and promote sustainable development in this province.

I am sure I have forgotten things, but I apologize.

**MS. RAYMOND**: Thank you very much. Now, workshop 4.

**RAPPORTEUR**: In our group, a good deal of the discussion kept coming back to the need for awareness, education, whether through mass media advertising campaigns, as has been done with seatbelts and smoking and so on, that there needs to be that awareness campaign and that then it should be followed up with incentives and legislation.

The awareness campaigns can be the mass media source, as I mentioned, or there was the suggestion that in a lot of cases it can be targeted to the source of the problem, the example being road contractors and the problem of sedimentation into streams. You bring that particular target group together and you have workshops with them in having them understand the effects of their actions. In more cases than not, the behaviour will change once they are aware of the consequences. Consumers, business, industry, youth, institutions, there is a lot that our institutions can do to take the lead, and schools, hospitals, government. If the neighbourhood school has a recycling program it affects the awareness of a whole lot of families and a whole section of our community.

Then we also talked about incentives and disincentives that kind of back up the awareness program. There needs to be an infrastructure. Yesterday there was the example that Americans sell their blood and Canadians donate their blood, so the same should be true with recycling, which I agree with, but there needs to be the infrastructure. We have the Red Cross, there is some money put into those units coming out to the rural areas and making it accessible to people so that I can go and donate my blood. The same needs to happen with recycling. There needs to be that infrastructure that makes it accessible to people so that people will do it. I think people will, they are backed up with the awareness program. I think you do need all three of those headings there, you need to have a program that looks at all of those.

The data base, the research and development. Ecology Action Centre is our example of a group that has been struggling for years in trying to and doing excellent research and development, but not having the funding that gives them the secure base to be able to get information out to more people and so on. There needs to be a diversion of money into research and development and into a central data base, perhaps as was suggested here, by having the, what did you call it, the Environment General?

The Office of the Environment General, some central way of doing the research development, having a data base and doing the networking that is accessible to all, that is accessible to the public, taking leadership, producing economic benefits.

The example of B.C. Hydro that was brought up this morning was talked about and the group felt it was regressive as a disincentive to have people consume less electricity because it is across the board, and once again it is the people who have the fewest resources who are having to pay the most. So there are some disincentives that are not seen as being progressive, but there are a lot of economic ways of having businesses and consumers change their way of consuming.

Finally, legislation. Our group felt that it was critical to set long term goals, that business should not be just responding to present-day regulations and legislation, that is not enough, that business needs to be taking that long-term approach and looking at where we want to be in 20 years, 30 years, 40 years, and this came from a businessman.

In terms of government, our province needs a comprehensive resource management plan that is horizontally and vertically integrated and, from that, policy can be developed on specific issues. Then, of course, it has to come into effective and immediate legislation. There was a feeling that we need to fast-track this, that we cannot just say that we are going to start this environmental awareness program now and that 15 years to 20 years from now we will be an environmentally aware public. Well, that is too late, we cannot do it that way, we have to fast track it.

The introduction to the workshop was speaking of the knowledge base, leading to understanding, leading to effective action. But in too many cases it is the crises that lead to understanding and that is what is happening, we are in a crisis and so we have to come to that understanding much more quickly than a longer education process. There needs to be the political will and there needs to be the diversion of money.

A really good idea came up, why not have an Atlantic Loto where the money is diverted to the environment, so that we are buying those lotto tickets and we know that the money is going into environmental education, environmental programs, recycling, whatever? It is being done with sports, why not the environment?

**MS. RAYMOND**: Thank you very much. Workshop five.

**MR. JOHN THORPE**: I am John Thorpe and I am with the Clean Nova Scotia Foundation. I had the pleasure of sitting in on Archie Fader's session who was filling in for Sonya Jones. Inevitably we got wrapped up with recycling as soon as we got into the session. We got about three-quarters of the way through our time and we realized we ought to get back to the job of putting something together for this presentation. Mind you, the information that we were able to share among ourselves, perhaps, with Archie's experience on how and what to recycle, I think was very important and obviously recycling becomes a significant ingredient in sustainable development.

We attempted to break down the sustainable development from different points of view and unfortunately we did not get too far with that, but we did start looking from the standpoint of individuals. Again, you see at the top of our list, education. I think that we felt, though, that as individuals we can

educate, we can share information among ourselves, though there was a feeling that there was lack of knowledge of where to obtain that information. There were suggestions of, for instance, having a sustainable development hotline or an environmental hotline where people could call in and get this information.

We felt that it was very important for individuals to take stewardship, to recognize our responsibility to the earth, to our environments or our surroundings that we have been taking from for so long that now perhaps it is time to give back. We can do that in a variety of ways, by purchasing, consciously being conscious of the environmental impacts of what we are buying, and, of course, that touching on the whole packaging thing. We, as Canadians, have the power of choice and we can exercise that, and that does get back to the manufacturers. They will continue to claim that it is consumer-driven, that they produce all this extra packaging and everything else, so we can get mass messages back to them through our buying habits.

We should also, as individuals, take responsibility for the waste that we, as individuals, create. Of course, coming from my standpoint, we can do very basic things like reducing the littering that we seem to make a habit of. That is a behavioural change which is a very simple one but it also relates to the way that we handle all of our solid wastes. We can recycle. There are facilities throughout this province where we can get involved as individuals with these recycling programs. Those of us that have space with gardens and things like that perhaps could reduce some of our waste in composting and things like that.

The group felt that, and I guess this covers a very wide range, to make our lifestyle ecologically sound. Once we are able to do that, once we, as individuals, can feel that we are taking on that responsibility, we could then pressure other sectors and perhaps by that the group meant government and industry to do likewise. Again, we can reduce our own consumption.

It was also stressed very strongly that non-profit groups can take a major role particularly in the educational end of things of informing the public and demonstrating to the public the way that things can be done. The comment was also made, perhaps as a criticism, that the non-profit sector had not been recognized sufficiently, at these meetings that we have had. That did not come from me, incidentally, that was from another member of the group. Of course we found it very difficult actually to make a division between us as individuals and the government because we are the same, virtually speaking, one is supposed to work for the other.

We felt that obviously the government should initially show leadership and by example perhaps, as was stated earlier by another group. That can be done and I am sure will be done very shortly, by, for instance, changing their buying policies to make sure that things that they buy are environmentally conscious, maybe they have a recycled content in them, it might be paper. They can show by example of recycling their own items in-house, and that is not just paper, that is all kinds of things.

To show leadership through encouragement, the concept of the environmental bill of rights came up at our session, and again I could probably spend hours just talking about that, but I think we all know exactly what that means.

The government could set limits for resource exploitation. This seemed to be a very important factor. There are a lot of unknowns involved in that issue in itself and it will take a lot of research to be able to establish that, but it was felt very strongly that was a role of government, to set such limits.

To fund research and development into sustainable development and that funding could be used by government agencies, but also again by non-profits and perhaps industry. Governments should develop environmental policies for all their agencies so that the environment becomes a consideration in making any other policy, perhaps. Also, to develop acceptable guidelines for minimum standards. This should be done in consultation with industry so that those guidelines would actually be realistic and enforceable and acceptable and workable.

There were several other points that came up. I think there was a general feeling with the people who were in attendance at this session that this whole process has been very valuable, the opportunity to be able to relate feelings and thoughts with other Nova Scotians was something that should be continued in some forum, perhaps on a community level. The suggestion was that at a municipal level people could get together on a regular basis and talk on this subject, and from that talk ideas can be developed, and from those ideas some very meaningful action. Again, from the bottom up seemed to be the way to go.

It was rather interesting, I think we all acknowledged that we have to take steps to adjust. There is going to be an adjustment. I do not think anybody in our group was suggesting that we go back to a Depression era. I think it is just a matter of maybe sort of a sideways adjustment rather than a backwards way, so taking a look from the side, horizontal thinking perhaps. It was brought up that metrification was something that was sort of thrown at us, perhaps, I do not remember myself, 10 years or 15 years ago now, but somehow we have reluctantly adjusted to that and we have accepted that, and that somehow some of us even think metrically now and we find that doing things in 10's are easier than in 16's or 12's or whatever it was before.

I think that is a very optimistic note, in fact, to perhaps end our little session, is that we have already proven on certain things that we can adjust. Maybe metrification is very simplistic, but after all what we are really looking for is a gross behavioural change across the board and that may be a may be a small example to show that we can do it. I am quite sure and the people in our group were very positive that indeed we can adjust and we can become good practitioners of sustainable development. Thank you.

**MS. RAYMOND:** Thank you very much. Workshop 6.

**MR. TIM SMITH:** My name is Tim Smith and I am a student at the School for Resource and Environmental Studies. I was fortunate enough to be able to sit in on the group 6 discussion today.

I think, by way of introduction, one of the things I would like to talk about is sort of a general concern that was expressed in our group that much of what we have been discussing at this conference thus far does look at sort of

reactive approaches towards what we have already done in terms of unsustainable development and that we perhaps need to embrace the fundamental changes in our approaches towards our economic principles and environmental decision-making that were highlighted in the Royal Commission on Environmental Development. This, of course, means that we need to consider ourselves as part of the holistic environment and that environmental considerations be taken into account simultaneously with the economics in any development framework. That was one of the general points of our discussion.

The second major point was that a fair amount of our discussion focused on including environmental groups in the decision-making process. This is important in that environmental groups have extensive information and data bases that could probably or could definitely be more effectively utilized, and that the input of environmental groups should be considered in full partnership in any discussions leading towards more sustainable development.

Some of the more specific areas that we covered included the need for more environmental indicators. We need to monitor our progress toward sustainable development and to do that we need to generate such indicators. One approach might be to more effectively use GPP, for example, such that we incorporate resource depletion or the cost of resource depletion in national accounting and have that reflected in GPPs. That would give us a more realistic picture of what is happening in our progress towards sustainable development.

Secondly, small business is one of the mainstays of the Nova Scotian economy and we need to develop some support for small business in terms of networking and creating associations on a sectoral basis within the small business community. This would serve to create economies of scale for developing R&D projects or in waste management. One way that could be effected is through creating or following the lead of Ontario, which has a very successful waste exchange program, and that could be implemented on a full scale in Nova Scotia. Perhaps this could be monitored through monthly bulletins to show the progress of the waste exchange program and how effectively it is working.

We also decided that there was a need to look more closely at incentive mechanisms or punitive measures associated with regulatory and legislative frameworks. Some of these include credit ratings or improved credit ratings for businesses or industries that incorporate environmental planning and sustainable development practices in their dealings. Other examples are lower insurance rates for clean industry, there could be tax reforms, all these things need to be more closely looked at.

Education and advertising is also an essential component of our progress toward sustainable development. We need to educate the public as to the environmental impact of our consumer choices. I think this is something that came up in a number of the groups today. Also, one thing that we thought would be interesting is a follow-up to Environment Canada's recent publication on what individuals can do in their own homes and their own lifestyles to proceed towards sustainable development. We need to be prompted every once in a while through a follow-up on that kind of a program, so that each homeowner or each household would receive such a follow-up type of campaign.

One other important point that was raised in our group was the development of a commission, a Royal Commission on environment to act in an auditing capacity, to review perhaps on an annual basis existing legislation and policies for sustainable development. Perhaps such a Royal Commission could address one or two sectors each year and make recommendations on better implementation of legislation and better policy courses to follow.

Finally, I would like to close with a challenge that our group came up with, and we would like to issue this challenge to every member of this conference, and that is that we take it upon ourselves to, within a prescribed time period, perhaps a month, to report to the Nova Scotia Department of the Environment our own personal commitments, whether it be corporations or small businesses that are attending here, on what we could do, in a general sense, towards meeting some of the goals of sustainable development. It might be suggested that the Nova Scotia Department of the Environment could publish the percentage of persons or groups that reply and perhaps even their names to every member of the conference. Thank you.

**MS. RAYMOND**: Thank you very much. We still have three workshops to hear from, so I would ask them to try to keep their reports within three minutes or four minutes. I guess we will go back to workshop 2 now.

**RAPPORTEUR**: I just got this job of being the rapporteur about six minutes ago. My name is Liz Crocker from group 2 and I will be as fast as possible, reading sideways here.

We talked about sustainable development mechanisms under a number of headings, the first being education. We felt that there should be education across the curriculum, and I think we made this point yesterday, across the curriculum and up and down, in terms of over the grades. We felt that the schools could actually be role models in terms of using environmentally sound practices, and that would supplement and reinforce and underscore the principles in the curriculum.

For example, schools could and should be using recycled paper. We were told that one high school alone used 7 million sheets of paper last year. There was some talk that perhaps big businesses or a business or a collection of businesses might want to sponsor the development of new environmental curricula in the schools, but there was the flip side of that, that some community groups had difficulty going into schools to deliver some of their environmental messages.

We talked about incentives to upgrade teachers. The note there saying October 1990, as many of you, particularly if you have children, know, there is a universal province-wide in-service every year in October. This year it is October 27th, in case you do not have babysitting arrangements, and so we thought perhaps what the government could do was target October 1990 as an environmental day, irrespective of the group that is meeting.

We also thought that schools who buy their supplies through government purchasing agencies could have environmentally sound products as options. In terms of public awareness, I think it is a common understanding that community

awareness programs need to be there, that values are changing. The public awareness needs to be supported, however, and there was some expression that to have increased public awareness without the mechanisms to help the public to know now what to do with their stuff is almost a disservice to the cause, because people will get fed up, frustrated and continue to send all their garbage to the landfill, for example.

The principles for any awareness campaign should be simple, believable, attainable and repetitious. Under the issue of regulations or legislation, I don't know if there was consensus in the group. We talked that we had heard that the Department of the Environment was hiring in forces, the number 35 was tossed around and people wondered whether that was enough or too much or whether that was even the right approach.

The point was made that having legislation or regulations in terms of business is not always looked on as a bad thing because it creates a level playing field for them all to abide by and nobody has unfair burden or special preference.

Policies should be clear and coherent and I will not say them all because I imagine you will read it, I will just elaborate on ones that might not be clear. The last point under regulations/legislation is actually that we do have in Nova Scotia now a fair amount of legislation and regulations and whether or not there is any credibility and whether those principles are being applied.

Under the issue of recycling, it is always a question of, are we doing enough? The man in the backyard means we should be cleaning up our own mess, that is what we are supposed to learn in kindergarten. Changing society and the last point that you may not be able to see at the bottom of the page says, reduce too. To talk about only recycling means that we are just constantly trying to keep what we are using in a circle but if we can reduce on the front end then we will have less to deal with on the recycling end.

Then over to tax incentives. Like many groups, we talked about the possibility of income tax write-offs, tax incentives, tax penalties. We said that any approach has to be a multi-sector approach. We cannot presume that government can do it alone or industry should do it alone or private citizens should do it alone. Having said that, however, we thought that it would be quite appropriate for the government to lead.

We all agreed on this point, that there has been great value in this forum, that you have people from different groups talking, sharing, listening, understanding, et cetera. However, I think many people would go away frustrated and cynical if there is not a mechanism for the value that has been achieved to be continued in some way.

We also agreed, like many other groups, that we need more opportunities for public participation and the notion of shareholders interacting with decision-makers and planners I think, again, has been underscored by other groups. Thank you.

**MS. RAYMOND:** Thank you very much. Workshop 8.

**MR. CHRISTOPHER CLARK:** My name is Christopher Clark, I am with Bowater Mersey paper company. One of the characteristics about group 8 that was impressive was the wide divergence of backgrounds that its members had. The one thing that we lacked, though, was volunteers and I apologize for not having overheads but it was not until we were well into overtime that Sandy Archibald engineered a long embarrassing silence and a volunteer emerged.

One of the advantages, I guess, in reporting last is that you can see a sort of consensus developing among the groups and a common identification of problems. Our group was quick to identify its concern about lack of public awareness and lack of public understanding of sustainable development and what that means. That obviously pointed the finger at education and the need for education.

We were concerned too, as a group, about the inadequate data base, the fact that there was not a common data base for all the various players: government, industry, environmentalists. We did not share common information, common knowledge, from which to work.

We identified a need for more communication with groups. We sort of bogged down, I guess, in deciding whether the communication should be by sector or on a much wider basis of cross-sectors. We then sort of took a step backwards and looked at what our mandate was during the hour that we were discussing the problem. It was to identify some kind of mechanism that would be useful on an ongoing basis to resolve problems and to develop a better understanding of sustainable development.

Group 3, I think, used the watershed advisory groups as its model. We looked at the Land Resources Coordinating Committee as a group that had been successful in dealing with a number of issues, many of which are controversial and we felt that this could be a model. For those of you who are not familiar with LRCC, it is comprised of, I think, 44 or 45 organizations that represent all groups that could possibly be interested in land and land use through the province.

We felt that kind of a mechanism broken down on a county or regional basis might well be useful. It would give good grass roots input. It would allow, I think someone in our group said, a strong democratic process, and though it did not come out in our discussions it perhaps reduces government intervention and pressure from bureaucracy. So we felt that we should look at that as a mechanism. We did not fully understand what the round table is doing but we felt that might be a role model that we could look at and again, that it might be broken down on a regional basis. I think we came to a conclusion that we need to deal on a regional basis because the concerns in Cape Breton may be different from those in Lunenburg County which in turn are different from those in the Annapolis Valley.

Obviously, following from that would be some kind of central and coordinating body that would pull together all of those regional issues and perspectives. We were concerned, I guess like group 4, with the lack of time, the fact that the process cannot go on and on and on and that it should be given some urgency. We did not discuss how we would achieve that but we recognized it

as a problem and we felt that whatever process is put together should address time as a key issue. I think that covers most of our points.

**MS. RAYMOND**: Thank you very much. I do believe there is one more workshop.

**RAPPORTEUR**: I have about 30 seconds and it is probably the only time in history you will ever hear a lawyer not hog an opportunity to use a microphone but I will try to keep it short.

One of the comments that came out of our group from Douglas Wright was that no mechanisms are meaningful unless they are attached to a goal. The consensus of the group was, I think, that there must first be a strategy established and defined and a series of objectives and goals towards which to work. Once that is established and within our group I think there were as many visions of what the goals and strategies should be as there were group members, but once there is a determination of what it should be the mechanisms we discussed as a group were taxation and other government incentive programs with the caveat that, of course, whatever is done must avoid both the GATT and the free trade agreements so that we are not, in fact, penalizing ourselves in the interests of trying to help ourselves. There have to be provincial standards and federal standards and regulations developed for everything, for example, from fuel efficiency to the Nova Scotia Liquor Commission taking back tin cans as well as bottles.

We broke down education into communication and education and there was a strong feeling among the group that public participation and decentralization must be core components of any decision-making process. The education element of the mechanism, to work toward sustainable development require both short-term and long-term goals including media programs, including using the schools, self-education by community groups and both government and industry must play a leading role in the education of the general public and that we must build on the success.

MODERATOR: Excellent. Well, it is quite evident a lot has been accomplished in exchange of ideas throughout this morning's session. We are even on time and I think your lunch awaits.

***( Break for Lunch )***

## Luncheon Host: Jim Vollmershausen

*In September, 1986, Mr. J. Vollmershausen assumed the duties of Director General - Conservation and Protection (Atlantic) - Environment Canada. Prior to this he was the Superintendent of Banff National Park for four years and before that he was Superintendent of Trent Severn Waterway, a heritage canal, headquartered in Peterborough, Ontario. Before arriving in Peterborough in early 1980, he had been an Executive Assistant to Parks Canada's Assistant Deputy Minister in Ottawa. Prior to moving to Ottawa in late 1977, he was the Superintendent of Cape Breton National Park in Nova Scotia; and immediately prior to that of Gros Morne National Park on the west coast of Newfoundland. This was preceded by stints in Parks Canada's regional office in Halifax, Kejimkujik National Park in southwestern Nova Scotia and an earlier in Ottawa.*

## Guest Speaker: Mr. V.E. Tretjakov

*Deputy Director General, Department of Economics and Rational Uses of National Resources, State Committee for Environmental Protection, USSR*

### The Basic Thrust of the Soviet Mechanism for Natural Resource Utilization

Mister Chairman, Ladies and Gentlemen

First of all, let me express my gratitude to the organizers of the conference, B.P. for E.S.D. in Nova Scotia, for their kind invitation to take part in its work.

I first heard of the economic impact of cleaning up the Canadian environment at a conference of economic experts in cross-border air pollution held in Geneva this year [1989].

In Geneva we supported the Canadian proposal to include the problem of cross-border air pollution in the work of the conference in 1990 because we are taking a similar approach to solving this problem.

The discussions held today in Halifax concerning the direction and results of an ecologically-based approach to development in Nova Scotia bear out our original assumptions.

Given the present level of social awareness, each country in the world, depending on its specific problems and capabilities, is attempting to optimize the trade-off of the economy versus the environment, man versus nature.

The present practice of managing the economy in our country is based mainly on a consumer attitude to nature. The ecological factor is barely taken into account when evaluating government policies, prices, planning, economic development and the allocation of productive capacity. Waste and the irrational use of natural resources (which appear to be free for the taking) hardly affect the economic activity of enterprises.

This had led to significant waste in industry and a tense ecological situation in a number of regions of the country. The main reasons for this ecological tension, in our opinion, are:

1) the inability to understand that economic development and preserving the environment are not mutually exclusive,

2) the present structure of the economy which favours resource greedy industries,

3) natural resource management by each sector of the economy,

4) primitive techniques and technology for extracting, processing and using natural resources in a rational manner,

5) the absence of an effective system for natural resource management,

6) flaws in production and consumption which do not take into account ecological factors with the result that industry has no incentive to make careful use of and preserve the natural environment,

7) a dearth of information concerning all the components that make up the environment and how they are polluted, as well as how technology wreaks havoc on the landscape,

8) only a partial understanding of how the landscape is formed and transformed, both as a result of natural processes as well as technological changes to constituent parts of theenvironment and to the environment as a whole.

At the present time in our country a 'concepts' project for economic development has been elaborated. It contains significant structural shifts in the development of the economy, in particular a decrease in the production of metal and energy.

This means that the economy should be distributed as well as possible throughout the USSR so as to attain maximum efficiency in regard to both the economy and the environment by applying a division of labour between regions.

The solution to this problem will depend to a great extent on improving the economic management of natural resources.

The new economic mechanism for natural resource use, in our opinion, must be based on the following fundamental principles:

First Principle - **Unity of the Economy and Ecology**

Economic development which renders the environment unfit for human habitation makes no sense. Therefore, the main task facing our society is to guarantee a sustainable, dynamic development of the economy to improve the standard of living of our people, while restoring and improving the environment. In this context the economic mechanism for natural resource use must be an integral component of economic management.

Second Principle - **Priority Given to Solving Ecological Problems**

Complex ecological situations in our country require a real improvement in the socio-economic status of environmental conservation and the implementation on that basis of a structural '**Perestroika**' of the economy, including all sectors of the economy and all regions, with the goal of improving social productivity, guaranteeing favourable conditions for the health of present and future generations, preservation of the biosphere, and the rational use of natural resources.

Third Principle - **Decentralization of the Management of Natural Resource Use**

The government of the Soviet Union must define the strategic directions for conservation, implement a comprehensive economic, scientific, and technological policy for the country, and establish the limits for natural resource use in the constituent republics of the USSR, solve inter-republican problems, and monitor the implementation of international agreements. Republican and local governments must bear full responsibility for the organization of an effective system of conservation, for the rational and comprehensive use of natural resources, and for the state of the environment under their jurisdiction. As a result of greater rights for local authorities, a shift must be made from planning environmental protection and the rational use of the environment by economic sector to one of planning environmental protection and rational use of the environment by geographical area.

Fourth Principle

The creation of a system of economic levers and incentives to make it unprofitable for any region, industrial sector or enterprise, to harm the environment, to use natural resources irrationally, to fail to fulfil international obligations, and to exceed the permissible limits of natural resource use.

Fifth Principle

The creation of a mechanism to fund the preservation of the environment, guarantee continuing funding, and distribute funds for planned measures.

To put these principles into practice it is necessary:

1) To change the methodology in evaluating economic efficiency and the allocation of productive capacity.

Constant improvement of the environment can be attained through the development and allocation of productive capacity all within established ecological limits.

The following ecological limits could be established:

i) Limits on the discharge of pollutants into the environment on a territorial basis (ecosystem) or by enterprise.
ii) Limits on the maximum allowable level of consumption (extraction) of natural resources from the ecosystem.

The first kind of limit would be an annual limit on the dumping of pollutants in a geographical area (ecosystem), averaged over a number of years but not to exceed limits established by the long-term State program for environmental protection and the rational use of natural resources included in the 13th Five-Year Plan and up to the year 2005.

The second kind of limit will be the maximum acceptable limit of annual resource consumption which will preserve ecological equilibrium in the ecosystem.

When evaluating the cost effectiveness of new structures, reconstruction and expansion of existing enterprises, the following principle should be observed: the discharge of pollutants should not exceed established limits in a given geographical area and extraction of natural resources from the ecosystem should not exceed ecologically acceptable levels.

2) To Link Environmental Preservation and the Profitability of Enterprises and Regions.

As they develop five-year plans for economic development, the constituent republics of the Soviet Union will transmit, on the basis of directives from Moscow, to their autonomous republics, krais [a Soviet administrative unit - Trans.] and oblasts [a Soviet administrative unit - Trans.] pollution limits (including limits on pollutants covered by international agreements), as well as limits on the levels of natural resource consumption permitted and limits on industrial effluent. In return local authorities, within the framework of their detailed economic plans, are required to notify all enterprises situated in the area under their jurisdiction of the aforementioned annual limits on natural resource use during the current five-year period. The pollution limits are set so that the aggregate discharge of pollutants, natural resource consumption and discharge of industrial effluent does not exceed limits set for the geographical area as a whole.

Taking the fixed limits as economic norms, the enterprises are also given notice of fees to be paid for: polluting the environment, natural resource use,

discharging industrial effluent, for polluting within established limits (the fee could be considered as a payment to preserve the environment), and for exceeding the permissible pollution limits.

The first kind of payment for natural resource use will be determined as a form of rental payment for use of the relatively best resources both in terms of their quality and their location.

The second kind of payment - for natural resource consumption beyond the permissible limit which could upset the ecological balance.

Payment for permissible limits of pollution, natural resource consumptions and discharging of industrial effluent must come out of the enterprise's profits. Payment for exceeding the allowable limits must come from the gross income of the enterprise, thus many times greater than the first kind of payment.

Under the policy of economic self-financing (turning a profit) the Soviet government must apply economic sanctions to those regions discharging pollutants, extracting natural resources and discharging industrial effluent beyond the established limits.

The first measure, which by decision of the government of the USSR is to come into effect in 1991, is the implementation of a payment system for pollution of the environment.

The introduction of this system of payments will, first of all, allow enterprises to make use of their own unused resources to cut pollution. And these resources, as an analysis of the existing situation demonstrates, are enormous. According to the experts the installation of environmentally safe equipment and improved production methods alone can reduce pollution from 20% to 25%.

3) To Reexamine Wholesale Prices In Order to Protect the Environment

Existing and newly established wholesale prices are a serious obstacle to solving ecological problems.

They do not take into account the new changes in natural resource management and, with rare exceptions, provide no incentive to save our natural resources and to produce ecologically clean products.

Thus, for example, rental fees for natural resource use, with the exception of oil, gas and electricity produced by hydroelectric stations, are not reflected in the new wholesale prices. This undermines the economic incentive to conserve our natural resources under the policy of full self-financing, as well as distorts the effectiveness of introducing measures to conserve our natural resources, so that the value of the resources saved will be in terms of the wholesale price based on average expenses, even though other unwanted natural resources will not be factored into these wholesale prices.

In reexamining wholesale prices it is necessary to:

i) to consider a price and payment schedule for using a particular resource and
ii) to consider discounts and an additional payment system for the development of environmentally safe products.
iii) exchangeability of some types of products

4) To provide local, republic and national funds for conservation

In this regard there is a proposal to establish special bank accounts. These accounts will be used to fund local conservation and then republic and national conservation. Local conservation funds must be established under the jurisdiction of the municipal, krai [Soviet administrative unit - Trans.] and okrug [Soviet administrative unit - Trans.] executive committees of local Councils of People's Deputies and Councils of Ministers of autonomous republics with the objective of financing measures for all sectors of the economy or just one geographical area to protect the environment. These funds will be set up by fees levied for pollution and irrational natural resource use as well as through other contributions. Local conservation funds must be used, with the consent of the State Committee for Nature of the USSR, for financing construction, retooling, reconstruction and renovation of environmentally-safe enterprises in the geographical area under its jurisdiction, the creation of republican and national funds for conservation, as well as solving other environmental problems. Therefore, payments collected for national resource use must be transferred to local budgets. This will strengthen the socio-economic development of the local areas.

Republican and State conservation funds must be created under the auspices of the organs of the State Committee for Nature and be spent for organizational goals and the resolution of environmental problems depending on whether a given environmental problem affects the whole country or just one republic. In particular, the State conservation fund must be used for financing: development of ecological programs for the whole country, participation in scientific research to further rational natural resource use, participation in the organization of international cooperation and ecology awareness education, as well as taking other steps to conserve the environment.

The introduction of a new economic mechanism for natural resource use at a time when the rights of local authorities have broadened creates very favourable conditions for the expanded development of various self-financing forms of industrial organization, including joint ventures with foreign countries to save natural resources, and also to overcome interdepartmental conflict at all stages of the industrial cycle, including scientific research, the development of technological and investment policies, production, sales, and service.

The new economic mechanism of natural resource use requires a new and greater knowledge of our natural resources, the extent to which they have been polluted, the impact of nature and technology on the landscape, and, as a result, a qualitatively new system of funding in order to monitor and control the state of the environment, scientific studies and research.

Taking into account the global character of man's influence on the biosphere, such as the destruction of the ozone layer and the greenhouse effect,

it is obvious that it will be necessary to create a unified information system of ecological control using both Earth-based monitoring systems as well as those in orbit around the Earth.

One of the largest and most important areas making up the Earth's biosphere is the Arctic where the USSR and Canada are slated to cooperate closely.

At the same time the experience of different countries in dealing with the ecology, the economy, the development and application of legal, economic and other means to provide incentives for the structural perestroika of manufacturing and the implementation of modern techniques and technology is very important.

The most important thing is that the experience of an ecologically-based development of the province of Nova Scotia has proved the economic effectiveness of the work undertaken here.

An experience of this type is invaluable in that it gives us faith and affirms our hopes of putting into practice the ideas of the Brundtland Commission concerning the possibility of economic growth in the world - significant growth which is also socially and economically stable.

From this point of new I have gained much knowledge from this important trip to Nova Scotia. The common efforts of businessmen, scientists and the public could result in harmonious development of the province. It is also very important that you listen to the voice of the children. We adults are responsible for protecting the world for them. We have to do it if we deserve the name of "being the adult". I think this conference is the right step in this direction.

The Honourable Premier of Nova Scotia, in his knowledgeable and entertaining speech, made more real our hopes, expressed also in the Brundtland report, that world development can integrate economical, social and environmental interests.

We are also left with a favourable impression regarding the competence and knowledge of the Minister of the Environment of your province, our friendly host.

Let's together wish them success in their efforts to preserve the quality of the environment of your beautiful province.

To say frankly we had not expected such a warm reception. We want to thank all of you for your hospitality. We learned a great deal about your province and we will bring the knowledge we have learned about your province, history and contemporary achievements back to the Soviet Union. We will also bring this information: where the first European parent's child was born in North America.

We found here new true friends, and hope to see you one day in our country. Thank you for your attention.

## SESSION IV

### Moderator: Dr. Marion G. Fry

*President and Vice-Chancellor, University of Kings. She has held a number of Administrative positions at Bishop's and Trent Universities before being installed as King's 19th president in 200 years. Her field of interest is Greek and medieval philosophy. Her formal training was received from Kings, Dalhousie a Oxford Universities.*

I would like to welcome you back from lunch. The keynote speaker this afternoon is Susan Holtz. *(Speaker Introductions)* Her topic today is "the National Task Force Exercise: how did it coalesce? - Lessons learned and lessons for the future."

### Keynote Address: Susan Holtz

*Susan Holtz is a private consultant in Halifax who specializes in energy, resource and environmental policy issues. From 1975 through 1982 she was on staff with the Ecology Action Centre. As its Senior Researcher, she continues to undertake special projects for the organization. Ms. Holtz has served on numerous environmental advisory bodies and boards, including the Canadian Environmental Advisory Council, Friends of the Earth and the Canadian Nature Federation. In 1987, she was appointed to the National Task Force on Environment & Economy, and has more recently been appointed to both the Nova Scotia and the National Round Tables on Environment and Economy. She teaches courses in environmental issues and practical writing in the Nova Scotia College of Art and Design's Environmental Planning Department.*

#### 1. Introduction and Background

I want to spend most of my time on the stuff that's interesting to me, namely lessons learned from the National Task Force on Environment and Economy experience. So that I can do that, therefore, I am not going to spend much time on the history of that Task Force. Suffice it to say that the Canadian Council of Resource and Environment Ministers (CCREM -- now the Council of Canadian Ministers on Environment (CCME) -- called the Task Force into being as one Canadian response to the World Commission on Environment and Development. What was interesting and positive, however, was that Madame Brundtland and her colleagues were still in the process of editing their report whenCCME finalized membership on its Task Force in January of 1987.

What was significant about this from the Task Force members' perspective, though, was the difficulties presented by this timing: with its own report due in September, 1987, the CCREM Task Force had nothing to respond to for the first half of its life. Its entire job was inventing a response to a global report on environment and development that it had never seen. (Interestingly, the

approaches taken by both groups had much in common in their analyses and recommendations.)

The Task Force itself was a curious mix. It included 7 Ministers of the Environment, including the Federal Minister; 7 industry and business leaders; 1 academic; and 2 members of non-government environmental groups. Organized labour had been asked to participate, but, due to particularly tense relations with the federal government at the time, had declined.

The Task Force also had a Secretariat, most of whose 22 members were delegates of the members of the Task Force.

Meetings of the Task Force were few: it met only 3 times before its presentation of its final recommendations to CCREM. The Secretariat, who actually did the drafting of the report, attended the Task Force meetings and had additional working meetings themselves; and the Steering Committee of the Task Force also met by itself several times.Out of all this came the so-called "Green Report" (referring ambiguously to both is its content and the colour of its cover), which is actually rather austerely titled "Report of the National Task Force on Environment and Economy.

## 2. The Green Report: What the Task Force Recommended

The heart of the Green Report, as I will call it, is its 40 recommendations. Each of the 7 topic areas has a brief (1 or 2 page) discussion, followed by recommendations addressed to governments, to industry, to non-government organizations, and to CCREM itself.

The recommendations themselves do not address the content of policy in the various sectors like agriculture or manufacturing, nor do they make recommendations on contentious sectoral issues such as pesticide use. Some environmentalists may have been disappointed by this, but it was quite deliberate. There was neither time nor an appropriate forum for coming to any decision about such complex and information-intensive questions within the Task Force.

Instead, the Task Force took one step back from such controversies and addressed the critical matter of how such issues should be resolved. Consequently, the recommendations are about processes, institutions and the frameworks within which society functions.

The recommendations include two sections dealing with ways to bring about decisions in both the public and private sectors which better integrate environmental and economic factors. Specific recommendations deal with tools and techniques, and more leadership and stakeholder participation in both public and private sector decision-making. Another section focuses on communications and education. Two sections essentially call for new institutional developments. One of these two calls for each jurisdiction to develop and adopt its own conservation strategy; these are intended to provide a framework in each jurisdiction for sectoral planning that brings together economic, social and environmental goals. The other new institutional development is the Round

Table, a forum created (again, in each jurisdiction) to provide First Ministers with advice on implementing sustainable development from leaders in all sectors, including key cabinet ministers -- which is both problematic and highly innovative in a parliamentary democracy. The only section dealing in any way with sectoral decisions made recommendations on Canada's international role. Finally, a section on follow-up called for an extension of the TAsk Force's life by one year in order to review and issue a report on progress on implementing the Task Force's recommendations.

### 3. Outcome of the Task Force Exercise

To finish up this thumbnail history of the Task Force, its entire report, including the recommendation for a year-long extension in order to review progress was accepted by the Canadian Council of Resource and Environment Ministers. As well,77 later that year, in December 1987, the First Ministers also accepted the recommendations of the Green Report.

The follow-up report noted that many of the Green Report's recommendations had a time frame of several years to decades for implementation. However, three important institutional changes required immediate action: action plans for implementing the Green Report in all jurisdictions; developing conservation strategies; and setting up Round Tables. By the end of 1988, most provinces, territories, and the Federal government had at least begun, and in some cases completed these tasks. Several, notably British Columbia, Alberta, and Newfoundland, lagged behind.

Where are we now? As might be expected, implementation is somewhat spotty. However (and I must admit, somewhat to my surprise), some very important recommendations have been implemented. Let me list just a few:

- Statistics Canada is participating in a major international initiative to develop national accounts systems that incorporate environmental quality.

- the Federal Minister of the Environment is now a member of the Cabinet Priorities and Planning Committee

- most jurisdictions have set up Round Tables

- the Business Council on National Issues and the Canadian Chamber of Commerce have formed environment-economy task forces

- the development of conservation strategies is moving forward, though often slowly, in most jurisdictions, and provincial and territorial governments are assuming responsibility

Now, a critical question is whether these things change anything that actually happens in the physical world. The answer is, of course, not directly. But these recommendations are aimed not at the immediate events that damage or support environmental quality, but rather at the political space and the often

tortuous decision process that impinges on these physical events. And these institutional changes do significantly affect these factors.

## 4. Lessons Learned from the Task Force Exercise

There are really two big categories of lessons that come out of an exercise like the National Task Force on environment and Economy. One category is what I would call "public" lessons. these are what any astute observer of politics, public processes, or the issues addressed might comment on. The other category is personal to the participants in the exercise: what I, personally, learned. This latter category depends a lot on what you know -- or think you know -- in the first place, and also a lot on idiosyncratic things like your personal interests and your bent toward reelection. In the following sections, I will try to address both of these categories on lessons.

### 4.1 Public Lessons

I am sure that there are many more comments to be drawn from this history than I am going to do now. I myself, I am sure, could find another dozen topics to examine. But for the sake of a manageable presentation, I've decided to confine myself, arbitrarily, to half a dozen "lessons" that are in the public category, and a smaller number of personal observations. Here are my "public lessons".

#### 4.1.1 There has been movement.

Because the task of turning the institutions and practices of hundreds of years in a new direction is so overwhelming, and because we are now waking up to the huge size of the related environmental, social, and economic problems that have to be overcome if we are to move seriously toward a sustainable society, it is very easy to overlook movement in the right direction. It's very easy to feel that, if we haven't gone far enough, we haven't moved at all. Almost by definition, institutions don't change rapidly. That doesn't mean they don't change at all. It is imperative to keep the momentum of change going, and to understand the significance of the many small steps, and the contributions of many people, to this process.

One of the lessons to be learned here is the significance of new allies in this process. From my perspective, as a person whose fundamental ties are with the citizens' environmental movement, there were many concerns about the imbalance in representation on the Task Force. But, from a political perspective, one of the main reasons the Task Force report commanded attention was precisely because the process had not been numerically dominated by citizen activists. Symbolically, a large enough mainstream consensus existed to have to be paid attention to. Moreover, the fact that industry and environmentalists could find common ground -- traditional antagonists -- seriously undercut the rationale for government to resist change. The same document, had it been drafted by environmental groups, could not have had the same impact.

4.1.2 The role of the well-briefed Secretariat.

Much of the actual work was done, with considerable input of time and energy, by a well-briefed Secretariat who were privy to the deliberations and positions of their bosses (actual or merely a structural fiction) on the Task Force. However, the real working through of positions was done face-to-face, in private, in the lengthy Secretariat working meetings. This is a lesson that diplomates, union negotiators, and many others have always known: the process of moving significantly opposed interests toward some agreement is greatly hindered if it goes on in the full glare of media publicity. This means a significant review of tactics and strategies for all stakeholders in consultative processes, but particularly for environmentalists, who since they have generally been without other avenues of influence, have traditionally relied on media publicity and a stance of no-compromise purity.

4.1.3 NGO funding.

The NGO sector, despite financial assistance, had a harder time participating in this exercise than anyone else for simple reasons of resources. Government and industry members could participate as part of their jobs, for which they were perfectly adequately paid. NGO members of both the Task Force and the Secretariat participated at the cost of personal time and/or income; and it should be noted that a decision to work in the NGO sector in Canada almost by definition means that one's income is significantly lower than it might otherwise have been. The Federal Department of Environment provided out-of-pocket expenses to NGO members of this exercise (excluding foregone income); it must be absolutely clear that participation was difficult, and would have been impossible, without such assistance. Nevertheless, the integrity of the process, its political usefulness, and much of its intellectual content depended on NGO participation. Governments cannot set up such exercises any longer without provisions for resources for NGO participants.

4.1.4 Unbalanced sectoral representation.

The reasons that I decided I was willing to participate in an exercise in which representation was so heavily dominated by government and industry were two:

first, several members of industry and government were known to me and shared my values sufficiently to make the "environmentalists" in quotes a larger minority than they seemed,

and,

second, this was not a binding and bounded process.

At the outset, it was not clear what the product of the Task Force was going to look like, beyond being a report of some sort. In the circumstance, if the report turned out to be terrible, I could always refuse to sign it; if it were merely mediocre, the main thing lost would be my time: no one would pay attention to a nothing-much report. So the risks of participation, for me, were not great. The same situation, incidentally, did not exist for industry: if

senior representatives failed to come up with a useful document, their prestige would suffer: my own non-existent public prestige would not.

Consequently, in this situation, an unbalanced sectoral representation was a practical problem in plenary session discussions, but it was not a strategic problem. But for other multi-stakeholder situations it might well be. For most multi-stakeholder exercises to move us forward in sustainable development issues, a better balance of interests is imperative.

This does not mean that, in the actual process of working together in a small group, many differences cannot be transcended. The experience of the Task Force shows that they can. But as long as one or more obvious set of interests is under-represented, the defensiveness and aggression that the imbalance will engender will threaten the ability of the group to find common ground.

### 4.1.5 Follow-up procedures.

One of the things that most bothered the members of the Task Force and its Secretariat was the absence of any institution to take over the work of the Task Force after it was disbanded. This was part of the thinking behind the recommendations on setting up Round Tables. However, Task Force members also knew that kind of new institution would take time to put together (as it has). In the meantime, "whose job would it be on Monday morning to go out and implement the Task Force's recommendations? No one's!"

Consequently, the Task Force took the step of trying to build in mechanisms for monitoring progress on its recommendations, such as setting time tables for some items. As well, it extended its own mandate and appointed itself reviewer of progress a year down the road. This, I fell certain, is one of the main reasons many of its key recommendations are being implemented.

### 4.1.6 There will always be controversies.

One of the most important things the Task Force did was to simply acknowledge that there are many unresolved environment-economy conflicts and to step back and concentrate on some mechanisms to resolve them. This is the significance of much of the emphasis in the document on public participation. Fairer and more participatory processes, including the Task Force and the Round Tables can bring out more of the different values that may be in conflict in a particular situation. An agreement on the overall goal of sustainable development does not mean that there will not be sharp specific divergences of opinion, or that there won't be winners and losers in some situations. Nor does a good process guarantee that the outcome, in hindsight, is correct. It may well be that the ecological, social, or economic costs turn out to be too high. Nevertheless, agreeing that process is critically important was one of the biggest steps toward a shared understanding by the Task Force.

## 4.2 Personal Lessons

The following are personal insights that I got from the Task Force and my subsequent work on both the National and Nova Scotia Round Tables. While most members of the Task Force would probably agree with much of what I have just said, the following comments are probably not conclusions that others would necessarily share.

### 4.2.1 Institutions resist change.

Both institutional structures and institutional planning processes are designed to resist change: that is one of their functions. Of course, institutions also must adapt to changing external conditions are they will eventually be destroyed. One thing I am learning is that treating institutions as immovable monoliths and attempting to harangue or bludgeon them to change puts pressure on institutions to change, but rather slowly: a counter-pressure of resistance and resentment is also created. Institutions change in the way that institutions change, namely incrementally, through the introduction of routines and precedents that those inside can recognize. Speeding up institutional change -- which I think is imperative if humans are to minimize the catastrophes facing us -- thus means finding ways to make profound changes small, familiar, and comfortable. Good managers often know how to do this; environmentalists are often suspicious because it seems too far from the scale of the problem. We need to re-evaluate constantly what is and isn't working in our approach to change.

### 4.2.2 Definitions.

Everyone does not need to agree on a definition of sustainable development in order to make progress toward its implementation. If maybe 90% of our activities are not sustainable now, we can go a long way down the road toward improvement before there's a fork in it.

On the other hand, we do need to develop some indicators about developing sustainability. We need to know when we're making progress and when we're not. Indicators point to trends, however, not to the fulfilment of a definition. Aggressively promoting one definition or another now simply means excluding some people or sectors from the dialogue. Insisting on the term "sustainable economic development", for instance, is regarded by most environmentalists -- including myself -- as a code for business as usual, with more environmental clean-up. That's not our vision of the future. But there's room for a variety of visions of the future; no one needs to be forced into someone else's fold. Our society can't afford to leave out major sectors right now; we need to be generating and examining new options, not splitting hairs about definitions. Sooner or later, if visions really do diverge, there will be practical policy consequences; in the meantime, there's plenty to do.

4.2.3 Governments are part of the problem right now.

Opinion leader research and other polls tell us that senior bureaucrats and politicians are more resistant to the changes needed than any other sector, including industry and the general public. I think it is fair to say that politicians generally, in office and out, resist the idea that there should be constraints that might interfere with their traditional prerogative of providing projects, programs, and policies to the voters. Opening up processes to input about environmental considerations -- or even economic considerations -- is not a popular concept with bureaucrats either. And yet, that is precisely what the Green Report calls for.

4.2.4 The concept of sustainable development in North America has a narrower meaning than in the developing world.

In North America, most people are thinking in terms of "integrating economic and environmental decisions". The Brundtland Commission, however, talked in terms of human needs. I think that in discussing (not defining) the concept, we have to pay much more attention to the economic and other systems whereby we meet human needs (or fail to meet them), and try to assess whether these systems are adequate and sustainable.

5. Conclusions

Let me conclude by saying that I've ducked my given topic on how the National Task Force on Environment and Economy coalesced. The reason is simple: I don't think it did coalesce, in the sense of becoming a group of like-minded people. What it did do rather successfully, I think, was find a lot of common ground. Most everyone believed, or at least was willing to accept the premise that a deep-rooted problem exists; I'm not even certain we'd all define the problem the same way, but it has to do with how society is related to the environment and the economy. And despite all differences, work on the problem can still go ahead.

*( Break )*

## Case Study #1: Audrey Manzer

*Chairman, Dartmouth Lakes Advisory Board. Ms. Manzer is a founding member of this volunteer environmental organization and has chaired it since 1972. Her curriculum vitae lists 31 voluntary organizations or activities that she has had involvement with, many at the level of executive member. She is a keen environmental advocate with past or current involvement on the Nova Scotia Resources Council, the Canadian Council of Resource and Environment Ministers' Shore Zone Management Committee, the National Survival Institute, and Voluntary Planning. She received a Nova Scotia Government Environment Award in 1983, and the Mayor's Gold Medal for Dartmouth Citizen of the Year in 1986.*

We have talked a lot about problems up until now in this conference and looked at directions we can go in and that sort of thing, but I think now we have arrived at the point we are going to talk about in the three case studies, things that have worked in order to combat problems, or perceive problems within the Province of Nova Scotia.

The City of Dartmouth has an extraordinary asset, it has within its borders 23 lakes. These lakes range all the way from undisturbed wilderness lakes in undeveloped areas of the city to the central Dartmouth lakes, which are in the heart of the urbanized core of the city and which are subject to intense pressure from development and recreational activities.

The lakes of Dartmouth provide a scenic setting for residents and businesses alike and have for generations served as recreational facilities and a water supply for Dartmouth citizens.

Dartmouth is well deservedly known as Dartmouth City of Lakes. However, in the later 1960s problems were emerging. There were traffic pressures from the growing population which used the lakes for swimming, canoeing, sailing and other activities. Heavy use was causing closures of beach areas due to high coliform counts, and siltation from an increasing number of developments was turning nearby lakes brown and making them unsuitable for recreational activities, which Dartmouth citizens had for so long enjoyed.

In addition, problems with flooding were becoming noticeable, in large part due to the infilling of marshes for construction and other alterations to natural drainage patterns. A quarry operating within the city and filling an important function in supplying gravel for roads and construction close to where it was needed, as well as providing employment, was causing siltation and assorted other problems in one of the most popular lakes.

There was also a growing problem with a disappearing supply of park and open space, and diminished public access to the lakes as development ate up more and more of the watersheds.

In light of this a number of interested citizens came together in 1970 to discuss how these problems might be tackled, and after several meetings it

became clear that some sort of body should be set up which could assist the city to put some measure of control on construction activities and to get the message out to the public that they must look after their very valuable natural asset before it deteriorated any further.

Since city council, the elected decision-makers, had the ultimate control over development approvals it seemed reasonable to set up a body which could assist with advice and background information to help the members of council to make enlightened decisions with regard to matters which had an impact on the lakes. Thus the concept of the Dartmouth Lakes Advisory Board was developed.

We were fortunate that time in that a member of the original group was a member of the City Council and we had a very receptive Mayor who paved the way for, what was then, a rather radical concept. A receptive and cooperate staff at Dartmouth City Hall helped to smooth the way, as well.

The Dartmouth Lakes Advisory Board was set up on a motion of Dartmouth City Council and had its first meeting in June of 1971. It has been meeting on a regular basis ever since over 18 years. During that time the board has evolved, finding its role within the city in order to serve its citizens and the council as issues have evolved and within a terms of reference which allowed us the flexibility to do that. The terms of reference of the board state its purpose very simply, "The Dartmouth Lakes Advisory Board has been established to advise City Council on all matters relating to the lakes' natural waterways and their watersheds within the City of Dartmouth.".

The board consists of 15 members and is made up of representatives nominated by the recreational organizations, making use and have an interest in the lakes. Volunteer expertise from several scientific institutions in the city and other areas, such as the legal professional, planners and developers, one representative from city staff, the engineering department and two members from City Council.

The members of the board serve staggered three year terms with the opportunity to be reappointed any number of times. Prospective appointees are nominated by parent organizations which have been designated within its terms of reference. This list then goes to City Council for ratification, thus, City Council actually makes the appointments, but the identification of knowledgeable and willing people rests with the volunteer organizations and institutions which have a vested interest in the lakes and have the necessary background knowledge to bring to its deliberations.

This knowledge ranges from those who have a background in scientific research to those whose profession is in the legal field, the construction business, teaching, engineering or planning, for instance, to those who simply know and love the lakes of Dartmouth because they have paddled on them, tramped around them or lived beside them all their lives.

The board members serve in a purely volunteer capacity, the chief motivation being a desire to see our lakes preserved, both aesthetically and in a water quality sense, so that they may be enjoyed by all, not only today, but by future generations.

The board advises City Council on all development plans which might have an affect on any of the lakes, consults on identified problems referred by the council, makes unsolicited recommendations wherever it detects or anticipates a problem, collects baseline data and participates in studies of various aspects of water quality.

All development plans with any implications for the lakes and waterways are referred by City Council to the board for review and comment before a decision is considered. In addition, the board liaises with the public and the media with an emphasis on education and information. It is in communication with the provincial Department of the Environment, consulting on water rights permit applications and reporting and consulting on any problem spots or violations within the city. It also consults with the provincial Department of Transportation concerning various projects which affect Dartmouth, such as new highway construction near the lakes.

The board often deals directly with developers and their consultants in the early stages of the development of plans which helps the developers to present more acceptable and realistic proposals to City Council, and ensures the developers are informed of what is expected of them regarding lake protection at an early, less costly stage.

The board views itself as an unpaid consultant to the City Council, assisting the elected officials to make more enlightened decisions by virtue of having all the facts at hand and all the homework done. It is a valuable third voice in addition to staff and council in the decision-making and implementation process. There is a feeling of trust in the local community between the Advisory Board and the general public. Average citizens feel that it serves as an approachable link with government and fulfils a watch-dog function on their behalf.

The Griffith Melnick Report, Watershed Advisory Groups in Nova Scotia published in 1988 contains a very succinct summation of the board's work, "One of the first problems tackled by the board", says the report, "was the silt ladden run-off from a quarry located on the shores of Lake MicMac. Over a period of several years, the board, supported by City Council, managed to persuade the operators to undertake environmental control measures on the site. The measures have been very successful and the quarry operators have received an environmental award from the province for effective environmental management.

Another early project involved the identification and implementation of environmental control measures to protect Bell Lake, a relatively small lake now completely surrounded by subdivisions. This was one of the first projects in which the developers consultant cooperated fully with the board. Its success in protecting the lake and enhancing the development through the establishment of a greenbelt demonstrated the strength of the consultative process when it is undertaken in good faith.

For the past 17 years, the main responsibility of the board has been to review developments and recommend appropriate environmental protection measures to be included, both, in the design and during construction. Development

proposals are referred to the board by the City Council. First, they go to the city engineering department. The department generally meets with the developer or consultant engineer to outline what might be expected in the way of environmental controls. The plans then go on to the board itself. Often the developer or his representative attend the board meeting to present the project. Once work is underway, engineering staff and individual board members visit the site to ensure that the control measures are working effectively.

The board has done pioneering research on environmental management of construction sites, the use of water control devices and on-site rehabilitation after construction. It has established a number of principles which have been incorporated into construction procedures now recommended by the Department of the Environment and the Department of Transportation. In addition, the board has become actively involved in the restoration of eutrophic lakes. Dredging and other clean-up work has already been completed on Little Albro Lake and Cranberry Lake is next on the list.".

The board has worked out a set of guidelines for development of lakefront lots which was adopted by the planning department. These guidelines are given to anyone seeking a building permit, so that they will know what will be expected of them in terms of environmental protection, early enough in the development of their plans to make their inclusion economically feasible.

DLAB has always been willing to hold special meetings to expedite the approvals which developers must obtain, thus establishing itself as a help rather than a hindrance. All development plans, which might affect the lakes, are automatically referred to the board by the planning department for comment and recommendations, which more often than not are included in the development permit by City Council. The board's central philosophy is to be nonconfrontational and cooperative with all the players, but to speak strongly if and when the situation warrants.

DLAB also works as part of the planning process, indirectly, by establishing concepts of water systems, of the economics of clean developments and the value of the protection and preservation of marshes as natural water retention areas and filters. The influence of the board's work can now be seen in the patterns of development in the city. In pre-board developments, houses and lawns closely ring lake shores with subsequent siltation and eutrophication.

Since the board was set up, you can find greenbelt areas, setbacks and environmentally sensitive developments. No question, deterioration of water quality has been slowed or halted in Dartmouth by activities of the board and many problems have been solved.

The DLAB operates without a budget, although City Hall does supply a meeting place and secretarial services. The board does not have any direct power or authority, but has considerable influence through its credibility and its reputation for consistency of approach. Fairness in dealing with all parties concerned with the development and accumulated body of knowledge and expertise.

To refer, once again, to the Griffith Melnick Report, "The main strengths of DLAB can be summarized as follows:

(1) Acknowledged expertise and experience. Several individuals have been members of DLAB for many years, they are very experienced, knowledgeable and provide a consistency of approach which is part of the board's success.

(2) Early input. A very important factor in the success of DLAB is that it becomes involved in the projects when plans are still being developed. At that point, input on environmental controls can still be factored into costs and plans can be changed with least disruption.

(3) Moral authority. The work of the board is clear to see in Dartmouth. Greenbelts have been established around some lakes, waterfront recreation areas have been built and lake clean-up projects are in progress. The board has earned considerable support from council and the general public for this reason and this in turn has helped the board when conflicts have arisen.

(4) Attention to detail. Direct contact is very important for ensuring that the requirements are not only understood and accepted, but are actually carried out on the site. Sometimes communication between the developer, the contractor and the bulldozer operator fall short and erosion control measures are not implemented adequately. In such cases emergency meetings have been called in the office or even at the site to see what can be done to salvage the situation.

(5) Cooperation with staff and council. An essential ingredient of the success of DLAB has been the support of the city staff and council over the years. As a purely advisory body it is unlikely that the board could have achieved its successes in lake management without it.

(6) Open meetings. The activities of DLAB have always been open and covered by the press. Occasionally this has lead to short-term problems, but in general it has strengthened public support.

(7) Positive public profile. The board members have also made a point of visiting schools and service clubs regularly to talk about the importance of managing the city's lakes. There have also been high profile projects which have involved many volunteers and received good publicity. Each year the board makes use of environment week to focus attention on the lakes. This strong presence has made it possible for the board to take a confident stand on controversial issues.".

So, what has all this got to do with sustainable development? Let me quote myself from a piece I wrote many years ago, probably 15 years ago, long before the World Commission on Environment and Development produced its report and long before the term sustainable development was a hot topic. "The Dartmouth Lakes Advisory Board feels it is possible to protect and conserve the lakes and waterways while allowing development to take place, provided the development is carried out in a manner which utilizes methods and technology by which erosion, siltation and disturbance of the watershed is kept to a minimum. The board operates from a basic philosophy of achieving its purpose not by being anti-development but by ensuring the lowest possible cost to the lakes when development takes place through cooperation with all parties concerned and

through promoting the idea of everyone working together to achieve a common goal.".

So, it would appear that we have been promoting the concept of sustainable development for nearly 20 years. In case you should get the idea from this presentation that it has all been easy and sweetness and light over the years, it has not been, believe me. The first half dozen years were extremely difficult struggle to establish ourselves, to convince the elected officials and the developers that we were not out to wield power or obstruct progress but that we were simply trying to preserve, conserve and enhance our most precious and irreplaceable resource, what a radical concept.

It is an incredible feeling now to see the wide acceptance of the principles which we, all those years ago, on the Dartmouth Lakes Advisory Board developed and promoted with an instinct that it was the right thing to do and we did it a generation ago.

**DR. FRY**: That was an impressive case study, indeed, wasn't it? I am now going to ask Brenda Haley of the Ministry of the Environment if she would introduce Katharine Rice. I long to stay with you for the rest of this session but unfortunately, because of the way our timing has gone, I am not able to. I wish you a continuing profitable conference. I am delighted to have been with you even for a short time.

**MS. BRENDA HALEY**: Thank you. Katharine Rice is going to you today on a river enhancement project in Cumberland County entitled, "Barbs and Bars." *(Speaker Introductions)*

## Case Study #2: Katharine Rice

***Director, Universalia Atlantic. Ms. Rice has over 20 years of experience in education: policy development, program planning, project management, needs assessments, and training design and delivery. Much of her experience has been in continuing education, distance education and educational technology, and in educational programming for seniors. She is Director of Distance Education & Educational Technology at Henson College, Dalhousie University and is also Regional Director of Elderhostel Canada (Atlantic). As a member of the Nova Scotia Salmon Association, Ms. Rice served as its President 1985-1988. In this connection, she has had extensive involvement at the policy and program levels with environmental issues. On a volunteer basis, Ms. Rice currently serves as the NSSA Director of a major river enhancement project in Cumberland County.***

Thank you, Brenda. As you have heard, I wear many hats and the one I want to wear today is that of the Nova Scotia Salmon Association. Many questions and salient points about the need to do something about our environment were raised here yesterday and today. I would like to talk about a project which has many of the ingredients the previous speakers have mentioned. For example, this

project utilizes a number of the systems that Chip Lindner mentioned, the political, the economic, the social, the productive and the administrative. It is a common sense project. It has presented challenges that have been picked up by the government and private sectors. It has begun the process of change mentioned by Ms. Olivastri and it works at the community and municipal levels that Dr. Savage talked about and most importantly it involves rural Nova Scotia that is dear to Dr. McLean's heart. It is a partnership project among various governmental bodies in the private sector and its continued success depends upon the continuance of these relationships.

I want to give you the highlights of the Barbs and Bars project, the short form of which is using offenders and unemployed people to restore fish habitat. Maybe you will see the connection between the words of the title. I want to present this through mechanism of a slide show but unfortunately we did not have the time, the money or the foresight to document each step of the way with visuals.

One of the purposes of this conference is to stimulate all of you to be creative and innovative in your approach to reconstructing the environment. I am going to ask you to get your creative juices flowing and visualize the slide show I am about to present.

Here is the screen, the focus I will leave up to you. I will provide the commentary as each slide appears in your mind. I am going to try and time myself to this fixed mike but I might dart. Dim your eyes and let's go.

This picture of Jack Stewart and I drinking beer in his backyard was back in 1987. Jack is with Corrections Canada and we are talking about our favourite subjects. Jack was talking about strategies to rehabilitate inmates so they would not return to prison once released and I was talking about strategies that would rehabilitate habitats so fish would return.

Here you can see that Jack and I exercised the two friends talk to two friends principle. We conscripted Kit Waters from Nova Scotia Corrections and Wayne Thorn from Employment and Immigration into our web. With the help of a touch more beer we put together a plan to get a joint project underway.

This slide shows the four of us contacting various government officials by phone and by letter. Directors General and ministers were very interested in hearing about the project even though it was still rather loosely defined.

Cumberland County appeared to be a good start for the project. Here you can see, I cannot quite reach that, the Springhill institution, a few towns, but no excessively large industries and plenty of salmon and trout rivers. This line shows the division of the DFO jurisdictions into Scotia Fundy and the Gulf region.

This mug shot is of the inaugural meeting of the steering committee which we put together to guide the project into fruition. As you can see, we have representatives of federal and provincial departments which have an interest in fish habitat. There is Environment, Fisheries, Lands and Forests and we have representatives of other government agencies. There is Corrections, Employment

and Immigration. That speaker phone in the centre allowed us to include the Nova Scotia Wildlife rep who lives in Cape Breton.

Everybody kicked in to put a proposal together which addressed the concerns of each of the bodies represented on the steering committee. You probably cannot read this so I will go over the components and objectives. There were three major ones. There was the biological component, the objective of this was to collect scientific data which would enable the prioritization of river restoration based on need. The objective of the educational component was to design a training program which would prepare people to work on the project and the plan to transfer the acquired skills to the labour market upon completion of the project work.

The community development component was two phased, economic development and social development. Broadly, the objectives were to develop strategies to involve industries, organizations, groups and individuals, and communities in project work, the stimulation of economic development to accommodate recreational fishery potential and to enhance positive attitudes of people toward the communities in which they live.

Well, here we are with the Columbo of CEIC's program innovations. We had been led to believe that this would be an appropriate avenue to get funding for the design phase. We scraped through the local people but we were turned down in Ottawa. Then we went to ACOA. Here you can see ACOA at the Nova Scotia office in the Brewery, beer seems to carry through here, presenting us with our cheque to move forward. This was a great day in our lives.

More important than the financial support was the uplift that the moral support gave us. Somebody believed in us. Those smiles were with us all the way. There were times when we wanted to cry in our beer but the ACOA guys were always there with good advice and good direction.

This is our meeting with the three consultants who were asked to be responsible for each of the three components and here we are accepting their final report. This report, by the way, provides a recipe for us to follow. Sometimes we deviate from the planned touch but that just adds to the flavour.

This slide shows our first office in Oxford and aren't we proud. You might recognize this man, Gord Helm, he is here today. Gord has been loaned to us from Corrections Canada to get the project up and running and the Town of Oxford gave us the space. The first office was right in the middle of the medical centre in town and the current one to which we moved the other day is in the Town Hall. Corrections Canada provided all that furniture that you see.

The Salmon Association had assumed the position of leadership in this project, but we believe that ownership should rest with local people so we have put together what we have named an advisory group to the NSSA which will essentially take control and direct the future of the project.

This slide shows the people who attended the first meeting a couple of weeks ago. This chap is heavily involved in the local tourist industry. This fellow is associated with a major industry in the county and this woman has been

involved with the project from the outset. There are a few others but in the interest of time I will not go over them.

Here you can see the gang in action. Helen Kerr, who is also here today, is a biologist who worked with provincial Fisheries and she taught these guys what to do. We have six teams of three like this working on a number of rivers. They are made up of inmates and unemployed people and they work like Trojans. They take measurements, note the barriers and assess the state of the vegetation in and near the rivers.

Money for this modest pilot was provided by CEIC and DFO Scotia Fundy. Here is a big burly, scary guy and yes, he is one of the inmates, look at those tattoos. He is not very happy, as you can see, but you would look like that too if you had invested hard work and emotion in something only to find them all dead because somebody flushed their spray tank out in the closest stream. To this guy, he is in prison for something a lot less serious than a major fish kill. I can't say I blame him for demanding equal time.

This last slide shows those of us who are devoted to this project pouring through whatever we can get our hands on that might lead us to money to continue the work. We are all determined to keep this thing going.

You might think that I have presented this project rather flippantly, but what I have done is told you how the concept came into being, how it was developed and implemented. I have touched on the planning that went into it and on the development of strategies to ensure its success on various fronts. These strategies have worked so far, largely because of the partnerships and relationships that have developed. It is a win-win project. The offenders win by working on their rehabilitation with a non-threatening resource and by developing an appreciation and respect for their environment, a project in which they had been engaged a few years ago, raped the countryside for purposes of a paper company. This project teaches them how to put it back into shape and most importantly what effect each action has in the environmental chain.

Government agencies such as the federal and provincial fisheries departments win through the collection of data and support in its analysis and through the completion of work which they are willing to direct but do not have the resources to conduct.

Communities and municipal governments benefit from the engagement of the unemployed in meaningful activity and by the support for entrepreneurship related to the recreational fishery. People have told us that they are becoming more aware of the possibilities for economic growth, but not in downtown Halifax style, or I might say, Upper Canadian style.

We might have the L.L. Bean of the East located in Cumberland County in the future with much of the goods made right there. In this project the private volunteer sector, the press, the federal, provincial and municipal sectors and the incarcerated have all worked hand in glove.

I hate to throw kudos at anyone in particular because everyone has helped so much, but I have to say that one group has been more perfect than others.

Correctional Services Canada, Atlantic Region has been phenomenal in its support in all ways. If all government agencies were like this we would have to give up government bashing as a favourite sport.

Don't let me leave you with the impression that everything went smoothly at all times. It didn't and it still doesn't, but with the range of people in the marriage there is always somebody we can turn to who knows how to solve a problem or knows another avenue to follow. The project is an example of what can be done by a whole lot of little guys. We need the financial and moral support of the politicians and policy makers but we are the ones who make it work and the partnership arrangement is the only way to go.

So, if I may put on another hat, thanks guys, keep up the good work. What happens to us is an indication of what will happen to you in the future.

**MS. HALEY:** I would like to thank Katharine Rice for her very animated and imaginative presentation. I think she kept us all stimulated. I would now like to introduce the speaker for our next case study. *(Speaker Introductions)*

## Case Study #3: Hugh Fairn

***Voluntary Planning, founding member of Land Resource Coordinating Committee, and past chairman of the Voluntary Planning Nominating Committee. Mr. Fairn was educated at Acadia University and was associated with his family's architectural firm for a number of years. More recently, he has been active in real estate development and cable television. He has served on the Board of Governors of Acadia University, as President of the Rotary Club of Wolfville, as Director of Ducks Unlimited Canada, President of the Nova Scotia Wildlife Federation and Vice President and life member of the Canadian Wildlife Federation. He is also a director of the Clean Nova Scotia Foundation, and one of the most generous contributors to Voluntary Planning at the sector level, as a ten year member of the Executive Committee and almost 25 years on the Voluntary Planning Board.***

Thank you very much, Madam Chairman. Someone should turn the lights on, after the slide show I can hardly see my notes. I was very intrigued by the two previous speakers and the things they have accomplished and the things they have done. I particularly call a fray from Susan's talk, something about balanced sexual representation. I feel just a little bit like the thorn among all the roses up here but I will try to speak for the many men who are also involved in interesting organizations who are concerned about environmentally sensitive development.

It has been my great pleasure and privilege to have been for a number of years associated with the Voluntary Planning organization of Nova Scotia. As you probably already know, Voluntary Planning is a uniquely Nova Scotian phenomenon.

It is the largest NGO assembly in Nova Scotia, with thousands of Nova Scotians from all segments of our province participating, Voluntary Planning has been outstandingly successful in creating a forum where private citizens, together with their government, have been able to identify and resolve many of the problems associated with the development of this province.

Voluntary Planning's successful marriage of business, labour and government has not been one of convenience or even of necessity, but rather has been a marriage of mutual respect, growing understanding and solid accomplishment.

Now, in the beginning, in the early 1960's, the organization was christened and mandated as Voluntary Economic Planning. Its formative years were spent in planning economic development. The excellent book recently published, Common Ground, records these early years and the many economic crises dealt with by the organization. Economic development plans and strategies were prepared and discussed, debated and eventually recommended to the government of the day. Some successes, and I must say, some disappointments, alternately encouraged or frustrated the hundreds of members of the segment and sector committees of the board.

Yet enough worthwhile was accomplished to hold the large voluntary membership and to make their donations of time and talents justifiable. But economic development alone, the pursuit of a plan or a strategy to maximize production and increase the gross provincial product did not always satisfy the private goals of the membership. Certainly economic improvement for this part of Canada was a worthy and widely suppcrted objective, but more and more the deliberations of the segments and the sectors and the board itself became concerned that the human values in this development equation. Standard of living, in stark economic terms was being modified to read quality of life. Along with a thrust for greater productivity and a higher level of competitiveness came a clear message that this small province should continue to pursue the goal of development, but not development at any cost.

By the early 1970's this message came through so clearly that the word, economic, was dropped from the organization's name. It was to be known from then on as Voluntary Planning. This was not to ignore or downplay the need for economic planning but more to emphasize a broader based social and environmental aspects of planning with which the membership, its committees and the board were becoming increasingly involved in the ongoing planning process.

Education and all its aspects, both from the social and the productivity point of view, occupied an increasing amount of time on the agenda of the organization. Urban development, human resources, land use planning, health services and health care, community planning, were beginning to demand equal time with the more traditional issues of economic development, manufacturing, trade and industrial expansion.

As new concerns were identified, new terms were seized upon to more precisely describe the new and broader meaning of Voluntary Planning. Resource development became integrated resource management. Human resource sector replaced both the manpower committee and the education advisory council and Voluntary Planning became involved for the first time with a review of

environmental control legislation, which it subsequently strongly supported and saw into law.

By the late 1970's, economic development and concern for social and environmental impact were concurrent themes running through the deliberations of the sectors and the board. Relatively improved levels of income, greater mobility of the population, more leisure time for everyone were some of the benefits of economic development throughout North America in this period. More people had more time and more disposable income, together with the means to travel, than ever before in history.

In a small province like Nova Scotia, certain distinct characteristics created new challenges. The new found leisure impacted heavily on non-urban land holdings. Unlike most Canadian provinces, Nova Scotia has relatively little Crown-owned land. Over 75 per cent of the non-urban land is privately owned in this province. Although outdoor recreation was considered a non-depletive use of a natural resource, the uncontrolled and often gross misuse of private land and other natural resources could not long be tolerated in this small province.

Therefore, a serious confrontation was brewing between landowners of recreational land and those thousands of urbanites and others who had the time and the means to seek recreation on these lands. Hunting, fishing, snowmobiling, hiking and so on were all part of the multiple use philosophy for renewable natural resources. But landowners were beginning to post their lands out of fear, real or imagined, of the damage and financial loss resulting from opening their lands to recreationalists.

These concerns and this crisis in our province's social development soon came to the attention of Voluntary Planning. All sectors supported the board's decision to establish a committee to address this and other emerging environmental issues. This group was to report to the Voluntary Planning Board and was to be known as the Land Resources Coordinating Committee. As membership in this committee grew and as an ever-wider series of issues came under its review, the word council was to be used in place of committee as being more indicative of the wide-ranging membership and make-up of the group.

The issue of landowner/land user conflict was immediately addressed and considerable success was achieved by bringing representatives of the principal land user groups together with the principal landowner groups. Heated debate quickly underlined the problems. What followed was an exercise in awareness and mutual understanding which resulted in a dramatic defusing of the explosive confrontation.

Land users came to understand the landowners worry and legitimate concern. Landowners, on their part, recognized that responsible recreational use of their land was not to be feared. The exercise led to a review of proposed legislation and eventually some new legislation in this province, known as the Trespass Act, or the Act to Protect Property.

LRCC played a leading role with the government in the preparation and formation of this legislation. This passage of the bill was followed by a series

of supportive educational efforts by the LRCC using member talents and a most cooperative media.

As the importance of cooperation for development became better recognized, LRCC plunged into issue after issue, from a small committee of less than 10 members it grew by leaps and bounds to include as regular members over 40 province-wide organizations. Frequently on the council were agriculture, forestry, teachers, boy scouts and girl guides, mining industry, real estate associations, the forest industry, manufacturing, tourism, engineering consultants, Wildlife Federation, snowmobilers, houndsmen, trappers, Christmas tree growers, forest technicians, union of municipalities, woodlot owners and operators and boards of trade, to name only a few.

Membership on these bodies represented on LRCC could be extrapolated to include over 70,000 Nova Scotians directly or indirectly having an input through LRCC to Voluntary Planning development planning process.

Some of the tangible results of this great example of cooperative action are; first of all, of course, the reduction of landowner/land user conflict and the initiation of the legislation referred to before. At the same time there was an attitude of, ask permission first before the using of private land. It was a popular movement, sharing the land, initiated by the LRCC group. Educational efforts through the school system about land abuse and a poster teaching aid, your land, my land, our land course of study was designed and promulgated by the LRCC organization.

Litter and pollution abatement leading to the establishment of the successful Clean Nova Scotia Foundation was another accomplishment of the LRCC. The first chairman of that foundation is here today, Vera Stone, nice to see Vera with us. We hope she will stay on as chairman for another year or two.

A campaign was initiated to eliminate arson in the province, a very serious problem, perhaps not as well publicized as others and the establishment eventually of the Arson Prevention Council of Nova Scotia.

Active and substantial input was made to provincial legislation. For example, the Act to protect property already mentioned and the Off Highway Vehicle Act. LRCC also produced and delivered a teacher guide and a 90 minute video to all Grade 9 teachers in the province entitled, Off the Road, covering the use of off road vehicles and how they should be used on private and public property.

Hazardous waste education for public and private school use was initiated. Currently under production is a waste management awards program for all Nova Scotia schools and a hazardous chemicals project for Grades 4 to 6. LRCC also made recommendations to government in the use of the abandoned rail lines in this province. This was begun before the recent unfortunate announcements about VIA Rail. There were a number of rail lines in this province that had been abandoned and the use of the roadbed was a matter of great conjecture and some disagreement. LRCC has made a strong and very well thought out recommendation to government in that regard.

There was a review of government policy in regard to parks and related to outdoor recreation. The council had considerable input in the acid rain problem. They sponsored a professional guiding association for Nova Scotia and qualifying educational courses to support that professional guiding.

LRCC strongly urged the Voluntary Planning Board and the Government of Nova Scotia to become involved in the World Commission on Environment and Development. When that was done, the LRCC played a role in the World Commission on Environment and Development Program and seminar in Halifax in 1986. It has been actively pursuing the philosophy of sustainable development as a wise environmental process in Nova Scotia for some period of time and LRCC strongly recommends a need for a conservation strategy for Nova Scotia and for this purpose recommended the establishment of the board environment and economy committee and leading to a participation here today.

Voluntary Planning and its LRCC have demonstrated how citizens from a variety of backgrounds with differing points of view and agendas can come together voluntarily for the larger issues which transcend personnel and their objectives. We have seen how conflicting points of view can be sublimated to a greater good and how men and women of goodwill, informed and prepared to listen to the other side, can pull together for the benefit of all.

Voluntary Planning has, indeed, matured over the first quarter century of its life. Development now is seen as a highly desirable objective, but development must not be at the expense of our human, social or natural environment. The members of LRCC, Chairman Donald Duncan is here today, as in other sectors of Voluntary Planning give their time and talents freely. They believe that this small corner of the world is precious and fragile and is ours to care for as we seek a better life for ourselves and for the generations for whom we must plan ahead. Thank you.

**MS. HALEY:** Thank you very much, Mr. Fairn, for your very informative presentation. Unfortunately our tight time schedule doesn't allow us for any general discussion this afternoon. I have found the presentations to be very interesting, the case studies, as well as the key note address by Susan Holtz and on behalf of Dr. Fry and the conference organizers, I would like to thank each of you for sharing your experiences with us this afternoon.

We have to reconvene here at 4 o'clock for the wrap-up session, so that only leaves about 10 minutes for a very short break before we get back here. I do have one announcement that I have been asked to make before we leave. Outside on the display tables you may have seen copies of this particular book which is published by the Ecology Action Centre, How to Get Your Lawn and Garden Off Drugs. Apparently this book was intended for display purposes, only, and it was not meant for distribution. So, if anybody has inadvertently picked up copies of this book, they are asked to, please, return them to the display case or if you are particularly interested in having a copy you may purchase it from the Ecology Action Centre and the purchase price if $12.95. Thank you very much.

***( Break )***

## WRAP-UP PANEL

### Initiating a Sustainable Development Strategy for Nova Scotia

### Moderator: Ivan Duvar

***President and Chief Executive Officer of Maritime Telegraph and Telephone Company, Limited. Mr. Duvar is an Electrical Engineer (TUNS) and also hold a certificate in Industrial Management. He is Chairman of the Board of the Island Telephone Company Ltd., and a director of eight other businesses and foundations. He also sits on the Board of Governors of both Dalhousie University and TUNS and is past president of the Halifax Board of Trade.***

I am Ivan Duvar your Moderator for this wrap-up panel. I have one little announcement I was asked to make, first. It has to do with a similar announcement that was made at the end of the last session. There were some other books that have been taken from the various displays and I have been asked to ask you to return them. If you would like to have them for a small fee I think it can be arranged.

To wrap up the session, during the last two days, we have listened, discussed and debated the intertwining issues of environment and economic development. Mr. Lindner described the prerequisites for sustainable development and indicated that if we fail in our endeavours, we will effectively condemn our future generations. He indicated that sustainable development should be stated through specific goals and objectives, Mr. Côté described the need for an information base to attract the effectiveness of various actions and activities that will be developed. This morning we heard from Mr. Aitken, who indicated the importance of tying sustainable development to our bottom line, both as corporations and as individuals.

In this wrap-up session, initiating a sustainable development strategy for Nova Scotia, we have reached the stage in the conference when we begin to turn the theory into reality and the rhetoric into action. I am going to call upon the panel, in the order in which they appear in the program, to speak on this issue and I will get started without any further ado.

As you heard last night, Mr. Leefe was unable to continue at the conference for personal reasons and in his place we have Armand Pinard, the Deputy Minister of the Nova Scotia Department of the Environment. Mr. Pinard was appointed to the Department of the Environment in 1987, having served as deputy in three previous portfolios, the provincial Departments of Tourism, Housing and Development. He also served in other senior government positions and received a graduate degree in economics from Dalhousie University and did his undergraduate work at Saint Mary's in economics.

With a background as the Deputy Minister in both the Departments of Environment and Development, I would suggest that he is uniquely qualified to initiate a sustainable development strategy in Nova Scotia.

## Panel Member: Armand Pinard

***Deputy Minister, Nova Scotia Department of the Environment. Mr. Pinard was appointed to the Department of the Environment in 1987, having served as Deputy in two previous portfolios: the provincial departments of Tourism and Housing. He has also served in other senior governmental positions. Mr. Pinard received a graduate degree in Economics from Dalhousie University, and did his undergraduate studies at Saint Mary's University.***

Considerable discussion has taken place over the last two days on the necessity for the Province to develop an overall plan for the integration of environment and economic decision making. There appears to have been widespread agreement that a comprehensive strategy linking the policies and programmes of all line departments of government is essential if Nova Scotia is to move toward a sustainable economy. As well it is apparent that conference participants believe that if such a strategy or plan is to be successful it must involve not only government, but industry, environmental interest groups and the public large. In other words it is a shared responsibility. As I believe this conference has demonstrated, it is also apparent that you are not only prepared to urge the government to undertake the strategic planning initiative but as well are more than prepared to actively participate in this exercise.

If the conference had only served to demonstrate this commitment and deliver, this message I believe we could have called it a success but it is obvious that it has accomplished much more. It has demonstrated that government and the private sector can work together cooperatively to deal with environmental issues. For the conference is just that - a cooperative venture planned, organized and financed by both the public and private sector. As well it has served to identify specific individuals, organizations and companies who are prepared to contribute this cooperative effort. Finally and perhaps most importantly it has served to reveal to us all that while there is general agreement on a need to work towards sustainable development, there is a diversity of opinion on what the elements of a sustainable development strategy should contain. We did not expect nor at this stage did we particularly want consensus. What we needed and what we got were differing opinions on what was and was not sustainable activity and what is considered necessary to move us toward a sustainable economy.

It is these areas of difference and conflicting opinion that will serve to identify specific topics which we hope will form the focus for a series of subsequent workshops on the environment. Which brings me to the final question - where do we go from here?

The government has recently drafted an action plan in which a detailed response is presented to each of the recommendations contained in the report of the recent Canadian Task Force on Environment and Economy directed to the provincial level of government. I expect that the response will be submitted to cabinet later this fall.

In the Action Plan a specific commitment is made to complete a Nova Scotia Conservation Strategy by the close of 1992 under the direction of the Nova Scotia Round Table on Environment and Economy. It is intended that this strategy will set out in detail Nova Scotia's plan for the achievement of sustainable development. In preparing the conservation strategy it is our intention that it will spring from an extensive process of public involvement, discussions, and consultation. As an initial step in this planning initiative we hope to set up a series of workshops focused specifically on issues and concerns identified during this conference. We also intend that each participant in the conference will be contacted by mail and asked to further identify issues and topics which should be considered in this process.

## Panel Member: Tom Hall

***President and General Manager, Stora Forest Industries. Mr. Hall is a graduate in Chemical Engineering (University of Toronto) and has spent his entire career in the pulp and paper industry. He has been involved in the production of nearly every type of paper manufactured today. He started as a chemical engineer with Quebec and New York to his present position with Stora in 1985. He is a member of the Executive Board of the Canadian Pulp and Paper Association and past chairman of the Paper Industry Management Association's New York - Canadian Division. Mr. Hall has lectured widely on the value of the forests to Canadians and on the need to protect them.***

### "Ideas Move Fast When Their Time Comes".
### (Attributed to Carolyn Heilbrun)

Just a few months ago I couldn't decide whether Canada's national debt or the environment was the most important problem we Canadians face. Today, while our national debt is a major problem and one that causes me deep concern, there is no longer any doubt in my mind that the threat to the earth's environment is far and away <u>the</u> most important issue of at least the next decade.

In one sense, the cause of both problems - the debt and the environment - is the same. That is, we have been living beyond our means and at the expense of future generations. People like us in developed countries have enhanced our standard of living by non-sustainable development and its related cost avoidance. That must stop. Yet, we know from experience, change will come slowly.

We can thank some brilliant scientists and some far-sighted environmentalists for sensitizing all of us, hopefully in time. even so, it will take many decades to correct the problems and the longer we wait, the more costly it will become.

Whether or not we're on the ragged edge where the Earth can't sustain its ecosystems at present levels of pollution, I don't really know. But, we have certainly reached the point where pollution by anyone anywhere - particularly in its affect on the atmosphere - is now very much the business and the concern of you and me. "It's a small world" is more true than ever in environmental terms.

There will be lots of pain, expense, and adjustment but I believe that, in the long run, it will be good for economic development in general and including my industry, pulp and paper, specifically.

I think I can illustrate that with one example.

First, you and I and others in the developed countries are not going to give up our standard of living, but we will have to change several aspects of our life style. That, in essence, was said many times these last two days.

Second, people in undeveloped and developing countries will want to catch up to, or close the gap, between their standard of living and ours. (This point was recognized too.)

Third, the world's population continues to grow - about double in 50 years to 10 billion - and to add to the pollution load. (No surprise here either.)

All of this means that economic development, including pulp and paper, must come to a halt or decrease if pollution levels are to be constrained or reduced - unless we take steps to curtail pollution while producing more goods and services.

Obviously, the scenario in which all pulp and paper and related forestry activities do not grow is not very exciting, challenging, or rewarding, and it isn't fair to those less fortunate than us. Undoubtedly we could use less but many others are disadvantaged by the unavailability of paper to them.

But let's look at the sustainable development scenario as applied to newsprint.

The consumption of newsprint in the U.S.A., Canada, Sweden, Switzerland, ranges from the mid-forties to about 50 kg per capita. In Austria, Belgium, Germany, the U.K. and Holland, its 20 to 30. In Portugal, Spain, Italy, Greece, France, it ranges from 5 to 12. China and India consume about one to two kg per person and, of course, other countries even less. If the rest of the world consumed newsprint at the same rate per capita as the U.S.A., world newsprint consumption would easily exceed 2000 million tonnes annually compared to 30-odd million tonnes presently. And in the year 2040, newsprint consumption would double to 450 million tonnes, give or take a couple, or about 14 times today's. I'm not suggesting the world should consume that much newsprint. It isn't likely sustainable in any case, even with heavy recycling.

But, the conclusion is quite apparent. There is a fantastic growth opportunity in newsprint with sustainable economic development and little without it. The same conclusion applies to virtually all endeavour. But these numbers also shed some light on the magnitude of the task ahead of us.

Sustainable Development can only become a reality and its associated rewards realised if limited resources are employed wisely and soon. The responsibility for that must be shared by several groups:

- **Private Enterprise** - obviously must carry on its business in ways that sustain and improve the environment. It must also show the world it is doing it.

- **Environmentalists** - must stick to the facts and be objective. And many of them do. Distortions playing on public fear will only waste time and other precious resources.

- **The Media** - must become much more knowledgeable so that it can give the public an open, honest, constructive, and objective perspective of the issues. Ray Côté, for one, mentioned this need too.

- **Government** - when all of the above are done properly, government will create laws and regulations that are environmentally, cost and time effective.

Resources are limited and time is likely short. We don't have the luxury of fighting each other. The time has come for all of us to work together. A point made by several speakers.

## What is Industry Doing and What is Stora Doing?

Dr. (Ellen) McLean said there is a lot of talk, but where is the action: well, here are a few examples.

- Last June, CPPA with the assistance and support of its 45-50 members issued an environmental statement. It endorses sustainable economic development and the actions required for its achievement.

- Stora's wold-wide policy states, "The main direction of our environment policy must be that we carry on our operations in such a way that we do not damage or endanger the environment for the world of the future and the new generations whose home it will be.

**Stora Forest Industries,**

- has assigned a senior manager to environmental matters on a full time basis. Naturally, he is here today.

- has under development and will launch in February a major environment awareness program for all employees. It will use the workshop approach to:

  A) increase their awareness and understanding of global issues such as acid rain, the greenhouse effect, ozone layers, etc.,

  B) mill people will learn what woodlands personnel are doing for the environment and woodlands people will learn what the mill people are doing,

  C) each employee will learn how his/her performance can affect the environment, and

  D) all of these employees will participate in finalizing our own environmental policy starting with the existing draft.

- has installed a 6 Million Dollar chlorine dioxide generator which has reduced dioxins and furans in our product to below detectable levels and it has reduced chlorinated compounds in our effluent by one-half.

- while no law requires it, we have begun the multi-million dollar job of removing all PCB-containing equipment from service.

- assures health and safety of people is the first step in Sustainable Development. I am pleased that this was recognized by this conference. It is the top responsibility and priority of all our employees and takes precedence over everything we do. One example is the on-going multi-million dollar cost of removing all asbestos from our plant and office buildings. In fact, we invest $1,000 to $2,000 annually in health and safety for each of our 1000 employees.

- are a participant in the St. Mary's River Project designed to determine the most ecologically compatible forestry practices.

- woodlands group is a pioneer in super wide flotation tires to reduce soil erosion.

- voluntarily spend millions of dollars annually planting 8 - 10 million trees on land we do not own - the peoples land, crown land. Three to four trees for each one we cut on that land. In Eastern Nova Scotia, we grow more trees each year than we use.

- have had a recycling option under study for some six months - another multi-million dollar project if it proceeds. (It's likely at least $50 million.)

- and we are making a feasibility study for a new pulp mill. The study provides for every state-of-the-art equipment and technology available to make the plant environmentally - friendly. And it provides space for some technology on the horizon. Absolutely no compromise has been allowed. And of course that's the position we must take for Sustainable Development - and so must everyone else.

**CONCLUSIONS**

These are just a few examples of what our company is doing. But I don't think we are unique, they are also representative of what much of the Canadian pulp and paper industry is doing.

While I can't speak for other industries, my perception is that much the same king of thing is happening in most of them as well.

We support Sustainable Economic Development and all that goes with it. But, we are not alone; media, government, environmentalists, and the public share the responsibility. Working together, we can get the job done. Do we have a choice? You and I know the answer.

With this conference we've made a start.

I believe the threat to the atmosphere warrants our priority attention and I am disappointed we didn't focus on it more.

I think I understand many of you a little better than I did two days ago and some of you may now understand industry is also genuinely concerned for the environment.

Like newborn birds in a nest we're not yet ready to fly on our own. We still need the department of the environment and people like Ray Côté to bring us together. With their help we'll take more steps together on the road to a sustainable environment and economy.

As Susan (Holtz) said, we are after all on the same side - the side of the earth, the future, our grandchildren and the people to follow.

## Panel Member: Dr. Patricia Lane

***President of P. Lane and Associates, Ltd., a Professor of Biology and Environmental Studies at Dalhousie University and Visiting Lecturer in the Harvard School of Public Health. She teaches human ecology and advanced ecosystem analysis. Her research interests center on ecological modelling and environmental impact and risk assessment. Dr. Lane has been certified as a Senior Ecologist by the Ecological Society of America since 1985. In 1988, she was named as Director in the Rawson Academy of Aquatic Sciences. In 1989, she was appointed as the Chair of the Senate and a member of the Board of Governors of Dalhousie University. Dr. Lane has lectured and consulted on a variety of environmental problems in Canada, U.S., Caribbean countries and the Far East. P. Lane and Associates is a successful environmental consulting company that serves Atlantic Canada from its Halifax and Charlottetown offices.***

# ACHIEVING SUSTAINABLE DEVELOPMENT FOR NOVA SCOTIA: THE ADVANTAGES OF ANTICIPATORY ENVIRONMENTAL PLANNING FOR ENSURING LONG TERM ECONOMIC SUCCESS

Today I would like to talk about the advantages of anticipatory environmental planning for ensuring sustainable development. After a brief introduction, I will ask four questions:

1) HOW HAVE WE MADE ENVIRONMENTAL DECISIONS?
2) WHAT TYPES OF ENVIRONMENTAL PROBLEMS DO WE HAVE?
3) HOW DO WE DESIGN A BLUEPRINT FOR ACTION?
4) WHAT SHOULD THE PROVINCIAL GOVERNMENT DO TO DESIGN AND IMPLEMENT THIS BLUEPRINT?

## INTRODUCTION

### Sustainable Development

Two years ago, the World Commission on Environment and Development (Brundtland Commission) published Our Common Future, which provided a compelling rationale for sustainable development in that the report details the global environmental deterioration which is increasing on every continent and in every country. This conference on sustainable development for Nova Scotia also enhances that rationale. Sustainable development is defined "as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological

development, and institutional change are made consistent with future as well as present needs."

> **Sustainable development is development that is conscious of environment in that it seeks to elucidate the hidden environmental costs in decision making and to take a more integrated, nonsectorial approach in planning development.**

In short, achieving sustainable development means keeping our options open, maintaining our environmental flexibility and doing no irreversible harm.

"Our Common Future", however, did not detail the blueprint needed to make the concept of sustainable development operational. Thanks to the Brundtland Commission, a large number of our co-inhabitants of the plant are now convinced that sustainable development should be our overall planetary goal. Many Nova Scotians share this conviction and our attention should turn to making sustainable development operational during this next decade. When we talk about sustainable development, we talk about making decisions. Everyone is a decision maker and often each of us wears several hats. Thus, any blueprint for action must, by definition, include the whole population of the province and our visitors and our neighbours. Although environmental problems are often adversarial, the collective "we", this collective set of decision makers, has more of a commonality of problem than division of interests if we are to have a common future in this high quality environment we call Nova Scotia.

In Nova Scotia, the various sectors of the economy are closely related to and dependent upon the environment. Tourism depends on the overall quality of the environment and its capacity to absorb more visitors each year. Agriculture depends on adequate soil and water (both quality and quantity) as well as use of the receiving environment for waste products usually discharged as non-point source pollutants (nutrients from fertilizers and toxic chemicals). Fisheries, including aquaculture, are dependent on the quality of our coastal environment which is already receiving considerable nonpoint source pollution. Forestry depends on fertile soil and good water supplies. There are several types of manufacturing which produce a variety of waste products that further exacerbates air, soil and water pollution problems. These point sources coupled with domestic sewage and agricultural runoff strain the assimilative capacity of the receiving waters and atmosphere. This, in turn, affects our tourism potential and other land and resource uses.

## (1) HOW HAVE WE MADE ENVIRONMENTAL DECISIONS?

In the first two hundred years of settlement and development in Nova Scotia, little attention was paid to environmental problems except for isolated instances. In the last twenty years, federal and provincial governments in Canada have become increasingly aware of our misuse of the environment and various environmental regulations and assessment procedures have been promulgated such as EARP (the Federal Environmental and Assessment Review Process). Environmental impact assessment (EIA) is a complex process whereby the activities and requirements of a proposed development are predicted to have impacts on the nearby natural (biophysical) and human (socio-economic) environments. Then society must decide what level of impact or risk is

acceptable. A comprehensive EIA will also include aspects of an environmental management plan including mitigation activities to lessen the impacts and plans for environmental protection, monitoring, contingencies, compensation, public participation, and accountability and reporting. Because of the high costs associated with conducting a large EIA involving an environmental impact statement and public hearings, these are conducted only for the very large projects: Venture, Hibernia and the Fixed Link. Private projects are not subjected to this federal environmental assessment review process unless they involve federal funds or lands.

When EIA's were first conducted, environment was treated as an "add on" activity which was often done after the site was selected and the detailed design engineering was completed. This meant that when serious impacts were identified, it was difficult to change key elements of the design. More recently, there has been an increasing emphasis on early planning and public participation in the federal assessment procedures so that the decision making process is made more collective and open. All provinces have now followed the lead of the federal government in initiating their own environmental assessment acts. All of these assessment activities are needed to protect our environment, but is the environmental assessment of mostly large federal and provincial projects sufficient to ensure that our environment is protected and that development will be sustainable in the province? I don't believe so. As presently practised, environmental assessment does not cover many decisions that are made that have environmental implications for Nova Scotia. Likewise just controlling what comes out of the end of a pipe or smoke stack is also necessary but not sufficient to ensure environmental protection. Pollution abatement is not enough. If our present assessment of major developments and pollution abatement practices are not enough, then what is lacking in our approach to environmental management?

## (2) WHAT TYPES OF ENVIRONMENTAL PROBLEMS DO WE HAVE?

Present assessment procedures although imperfect do address large development projects and their associated impacts. What is not addressed, however, is the whole area of cumulative effects assessment and management.

Cumulative effects and our inability to deal with them is a major obstacle to achieving sustainable development. Although projects such as a large hydroelectric facility or a new industry often cause environmental damage, these projects are not the major cause of world-wide environmental deterioration. Almost all of the examples cited in "Our Common Future" (1987) are examples of cumulative effects. Perhaps as much as 80-90% of the overall global deterioration can be related to the small scale activities that proceed in an unchecked yet interrelated way throughout the countries of the world. Human activities leading to cumulative effects are so pervasive and, in one sense, so routine, that they do not receive much attention until there is wide-scale, regional deterioration of the environment that exceeds some threshold level of human awareness.

Lane et. al. (1988) have recently written a Reference Guide to Cumulative Effects Assessment in Canada. The authors define cumulative effects (CE) to

include those human activities that cause both periodic (time crowding) and synergistic (space crowding) impacts on a regional ecosystem such as a watershed. Most areas of the globe are impacted simultaneously by multiple human activities. These incremental and often multiplicative effects are seldom assessed in any rigorous way much less managed and planned for.

Examples of Cumulative Effects

Examples of cumulative effects include: long range transport and deposition of air pollutants, global climate change, habitat alienation and fragmentation, deterioration of soil quality and quantity, ground and surface water contamination, long-term containment and disposal of toxic wastes, desertification, loss of biological diversity, and changes in major hydrological regimes. Although the impacts at the local ecosystem level are common ones such as the loss of a species or an increase level of a heavy metal in a lake, what makes cumulative effects difficult to identify and manage is their regional patterns and the fact that cause and effect can often be distant from each other in terms of time and space. Smoke stacks in the midwest US can cause lakes to acidify in Kejimkujik National Park.

Most developed countries have based their environmental management programs on environmental impact assessment (EIA) of large projects and development of legislation for curbing effluents, especially industrial effluents. This can be termed the "Western Model" used by Canada and the U.S. There has been less effort directed to planning or managing cumulative effects. The United States currently uses the term in their environmental legislation; Canada does not. The western model for environmental management is inadequate for the developed world and even more so for the developing world. This is not to say that EIA for large projects and stronger environmental legislation are not needed, but rather that without an appropriate environment strategy that deals directly and effectively with cumulative effects in an anticipatory manner, the environment will continue to deteriorate at an alarming rate.

Tyranny of Small Decisions

Cumulative effects can arise from the activities of individuals. For example, many farmers clearing land and using few environmental protection measures in cultivation can collectively cause a serious decline in soil quality of their own land and degradation of water quality in the lower areas of the watershed. Odum (1982) has termed this the "tyranny of small decisions". The "Tyranny of Small Decisions" occurs daily when we interact with Halifax Harbour. Thus, when many small decisions are made independently, the incremental consequences of the decisions are usually not addressed nor are they recognized as being caused by discrete events. Likewise, in areas where the inhabitants are living close to the land in agricultural areas, the focus on environmental impact assessment of large projects and industrial effluent guidelines as the sole cornerstones of environmental management is not adequate.

Thus, cumulative effects can arise from a variety of both small and large human activities and decision making. There can be repetitive farming on slopes that over the years leads to erosion and siltation and chemical contamination

of the receiving waters. Cumulative effects may come to our attention after a catastrophe such as a hurricane or the meltdown of a nuclear plant or more often in an insidious way such as the regional deterioration of terrestrial and aquatic environments related to acidic deposition, global climate change, or the build up of pollution levels in our major harbours.

Policies also Produce Cumulative Effects

Cumulative effects can also arise directly from government policy, lack of policy, or conflicting policies. National and local level policies can greatly exacerbate cumulative effects. Different ministries or departments might implement conflicting policies that are not environmentally sound or even possible. This might occur simply through lack of communication between the departments and/or lack of environmental awareness and motivation of higher level officials. Thus, even when we know the causes of cumulative effects problem, our institutional jurisdictional framework may be inadequate to solve it. Thus policies of our institutions also have the potential for considerable environmental damage and goals often conflict on a sector to sector basis. For example, a main goal of a Department of Agriculture is to increase production perhaps by ploughing under marginal wetland areas and farmers are encouraged to increase the amount of arable land. This leads to habitat fragmentation which is a major type of cumulative effects problem. In contrast, a Department of Environment and various wildlife groups offer incentives to farmers to promote the maintenance of wetland habitat. The same farmers can be offered both incentives. Clearly, with integrated non-sectorial planning this would not happen and cumulative effects would not proceed unchecked.

(3) HOW DO WE DESIGN A BLUEPRINT FOR ACTION?

It is my belief that we cannot achieve sustainable development if we cannot assess and manage cumulative effects. This necessitates that planning and decisions involving the natural (biophysical) as well as the socio-economic environment be fully integrated. We have to recognize that the way decisions are made has to be changed in a fundamental way. Decision making must become non-sectorial and integrated on every level of society with a great deal more participation and cooperation among all Nova Scotians. It will also require that our traditional institutional and jurisdictional modes of operation, some of them dating before confederation when our environment and natural resources were considered to be unlimited, will also require adjustment. If pollutants recognized jurisdictional boundaries such as the Canadian-U.S. border, the lakes in southern Nova Scotia would not be as acidic as they are presently. We now have the cause of environmental degradation sometimes thousands of miles from its effects. Many of our institutions are built around a single discipline or single sector approach. Even our institutions of higher learning are mostly organized on individual disciplines as are their curricula.

Traditionally, in the developed world we have not done very much environmental planning. Our approach has emphasized the assessment of large

developments and methodologies and modelling have become fairly sophisticated for EIA. We also have a good understanding of whole classes of development and their associated impacts on various types of components in our wide range of Canadian environments. Our catalog of human cause and environment effect is becoming well-documented. We are also beginning to understand that despite our first-order successes in science and technology, that our second-order failures or the indirect effects of our developments and activities are not putting us in control of our environment but much the contrary. We are being overcome with a creeping, insidious slavery to our environment as development options for using and prospering from our environment are becoming closed to us. The concept of sustainable development argues that we should do everything to ensure that our options are kept open. Any sustainable blueprint will need to focus on anticipatory environmental planning aimed at preventing cumulative effects.

Our traditional, mode of development and sectorial decision making with an add on, reactive approach to environment is not going to be adequate. Presently, the Sydney Harbour clean up is budgeted at 34 million dollars and the Halifax Harbour clean up at over 200 million dollars. No one believes that these clean ups will restore those harbours to their pristine, natural condition. At best, the clean ups will improve environmental quality so that the efforts achieve public acceptance. If that money could have been spent on a province wide, proactive approach to environmental management and planning, probably many times that amount would have been saved over the next few decades in enhanced development for the province. Eventually, the Nova Scotia economy will become increasingly hard pressed to cover clean up costs. Although large clean ups can help local economies, the positive effects are short term, localized and very small compared to the multiplicative benefits of having long term, environmental quality with development flexibility for all of our economic sectors. There has been an interesting parallel in the planning for health care in the province with a more interdisciplinary health care team approach emphasizing anticipatory and preventive measures in a more regional delivery system.

## 4) WHAT SHOULD THE PROVINCIAL GOVERNMENT DO TO DESIGN AND IMPLEMENT A SUSTAINABLE DEVELOPMENT BLUEPRINT?

First, there needs to be institutional strengthening with an explicit nonsectorial approach. The provincial cabinet should have a Ministry of Sustainable Development which is essentially a ministry of economic and environmental planning including as many policy - economic specialists as environmental experts who would work together in interdisciplinary teams. This ministry would set the provincial policies on sustainable development, work on eliminating the institutional-jurisdictional barriers that thwart the success of sustainable development and resolution of cumulative effects problems, and develop new ways of achieving nonsectorial, integrated decision making. The environmental implications of activities and policies would be planned for and eliminated or reduced simultaneously with development planning in a proactive cooperative manner. Conflicting inter-department policies would be identified and eliminated. Incentives would be developed to encourage sustainable development activities and innovation at every level of society.

Second, sustainable development planning would need to proceed province-wide on a watershed basis. Presently, Prince Edward Island is mapping and describing their major watershed complexes with the ultimate aim of developing a Geographic Information System for the mappable information. A watershed unit tied with a coastal zone management system is needed to characterize the basic units related to planning for cumulative effects and the multiple human activities that are or will be occurring in the water shed or coastal zone. A Nova Scotia GIS needs to be developed specifically for sustainable development that would not only contain the traditional forms of mappable environmental information but a system that would be "intelligent" is crucial. Such a system would contain various types of cumulative effects assessment measures and models including environmental risk models that could transform the baseline data base into information needed for detecting second-order or indirect effects in relation to development planning and decision making. The system I envisage is not yet but the expertise needed for developing it is.

Custom-designed cumulative effects assessment indicators and models, especially those that combine economic and environmental information, are needed. Each watershed or coastal zone should have a set of sustainable development criteria that are: a) environmentally relevant, b) clearly interrelated with other development indicators, c) operationally measurable (short and long term), d) compatible with overall monitoring programs, and e) accepted by government, public, and stakeholders. In some of my previous sustainable development work, I have suggested measures for habitat intensity, resource production, and environmental capacity. The first characterizes land use and its mix given an array of inputs for those uses; the second relates to the productivity of the particular resources (forest, agriculture, fisheries etc) in the area, and the last computes the ability of the area to assimilate pollutants given the uses.

There would need to be government support and leadership on the implementation of effective cumulative effects assessment and planning which could ensure sustainable development for Nova Scotia. In gathering and monitoring the water shed units, however, there would need to be wide scale cooperation and participation not only of municipal and local governments but of all Nova Scotians-all the decision makers who both cause and suffer from the cumulative effects that are deteriorating our environment. There are a large number of Nova Scotians who want to "do something" for the environment but they are not sure what to do. Their enthusiasm and cooperation should be encouraged.

Third, decision makers whether they are government officials, homemakers, school children or people working in the private sector, cannot be made instantly interdisciplinary because we wish them to be so. Almost all decisions that we make whether they are the small ones or the large ones depend on different types of information-the weighing of many factors. We may decide to ignore particular types of information or for example, ignore the environmental consequences of a decision. Usually when we do this, the consequences are adverse enough that we wish we had not make the omission. The essence of sustainable development is the need to consider different types of information simultaneously and not to optimize one (for example, short term profit) at the expense of another for example, long term environmental deterioration which will

cause irreversible damage and cleanup costs with all possibility of future profit diminished.

The encouragement of sustainable development wisdom for all Nova Scotians needs some serious rethinking in regard to the delivery of education in the province and the present single discipline, sectorial curricula at all levels of schooling. For example, Dalhousie University has recently established an interdisciplinary environment committee that will study and recommend sustainable development practices for the university. This is not just a faculty committee but it contains members of the senate, administration, student groups, and various staff unions. Dalhousie considers that environment is not only an interdisciplinary problem but a concern of all sectors of the university community. Similarly, Dalhousie has placed an emphasis on the promotion of interdisciplinary studies in its Mission Statement by naming two interdisciplinary areas of special emphasis: Ocean Studies and Health Studies and also by emphasising enhancement of interdisciplinary programs in is Academic Plan for the first half of the 1990's. Dalhousie's efforts should not be isolated from the rest of the university and public school system of the province. Government could do a great deal to insure that interdisciplinary expertise will be developed for ensuring sustainable development for Nova Scotia through the approval of such programs and their financial support.

## CONCLUSIONS

In summary, I believe the biggest obstacle to achieving sustainable development is to over reliance on the western model of environmental assessment and pollution abatement with an emphasis on planning on a narrow sectorial basis. To achieve sustainable development in Nova Scotia we need to:

(1) assess and manage cumulative effects using an anticipatory environmental planning approach on a watershed basis using a variety of resources from sophisticated computer levels to exuberant young volunteer tree planters,

(2) integrate decision making at all levels in the province-this involves all Nova Scotians as well as institutional and policy strengthening,

(3) improve our ability to think and plan in an interdisciplinary way-this necessitates changes in our curricula and educational system.

In short, we have to be more proactive and innovative. The cost of inaction is prohibitive and it will become more so. We have some great opportunities to achieve sustainable development as compared to many other provinces and states. We have a relatively small and well educated population for our land mass with a large coastal area, present pollutant levels are low and localized, and our people are concerned and ready to contribute. We are well poised to be a leader in this area. If we take the lead in sustainable development, the returns will be great both environmentally and economically. We don't need more rationale, we need operational blueprints for action.

## CLOSING REMARKS

**MR. DUVAR:** For closing remarks, I would like to call on Armand Pinard, Deputy Minister for the Nova Scotia Department of the Environment and Pat Ellis, first, Past Vice-Chairman of the Voluntary Planning.

### Armand Pinard

***Deputy Minister, Nova Scotia Department of the Environment. Mr. Pinard was appointed to the Department of the Environment in 1987, having served as Deputy in two previous portfolios: the provincial departments of Tourism and Housing. He has also served in other senior governmental positions. Mr. Pinard received a graduate degree in Economics from Dalhousie University, and did his undergraduate studies at Saint Mary's University.***

On behalf of the Province and the Minister of the Environment, who clearly wanted to be here to close out this historic conference, I want to convey to each and every one of you our thanks for your participation and contribution. A special thanks goes out to all our speakers, the organizing committee, and those who have travelled from afar.

We expected approximately 200 people to attend and quite frankly we are pleased and excited that more than 300 registered. To me that is a clear indication that there is a growing interest and commitment to protecting and improving our environment.

I know that the Minister in his closing remarks would have wanted to stress that this conference is truly a beginning towards working in full environment partnership. The dialogue that has occurred here has to continue and the many good ideas that come out of the conference carried forward. Knowing the Minister as I do, I am sure that he will do all in his power to make sure that these things take place and that the process continues.

Personally, I know we will all leave this conference committed to doing our part, and hopefully even more, in order that we may someday leave this place better for our children and their children.

### J.R. "Pat" Ellis

***Former Senior Vice-President, Atlantic Provinces Division of the Bank of Montreal. Founding Chairman, Victoria General Hospital Foundation. Chairman, Commercial Projects Review Committee for ACOA. Member, Premier's Planning Advisory Council. Vice-Chairman, Board of Governors, Acadia University. Past-Chairman, Premier's Conference on the Economy. Past President, Nova Scotia District, Canadian Bible Society.***

I am not an informed environmentalist, a bureaucrat or an active industrialist, but I am a very concerned citizen and I speak now for Voluntary Planning. VP is pleased to have played a role in the planning and implementing

of this conference which has brought together the many interested parties who share an ongoing concern on the need to do more than is now being done to deal with our environmental concerns. We all know why we came to the conference and we all have our own ideas of what we think it is that took place here over the past two days.

We listened with interest to those whose points of view we share, as well as those who have come at the issue from a different perspective. The workshops gave everyone the chance to put forward their own views and satisfied most of us that it is easier to discuss issues than to focus thoughts on addressing the specific topics that the conference organizers placed before us for our input.

What has been accomplished in our time together, it is early to say, but we do know there is a consensus that the time has come to institute more action to accompany the dialogue and positive steps that have brought us to this stage. Let me draw on the experience of the Premier's Conference on the Economy held four years ago. Fully supported by the Premier, as is this Conference on the Environment, he asked for and received the views of the participants. Many of the concerns expressed have been dealt with in subsequent Speeches from the Throne and followed up with new legislation and policy initiatives.

It may not be as easy to deal with a number of environmental issues in view of the divergent views held, and often strongly, by the varying forces. Hopefully, the indication given by the Premier and the minister of the government's intention to be more responsive will send us home with a positive feeling about the value of the conference and the expectation that we will see more action on their part.

Let me conclude by saying that we, as individuals, can do much to continue the momentum generated here. I know, in many cases, I am speaking to the converted, but no everyone has reached the same learning curve. We need to have a concern for how others view their stewardship role in caring for the environment. With understanding we can be a positive influence in encouraging changed attitudes. Commitment to the cause is essential, along with the determination that all of us can and should share in improving our environment. Involvement is what brings it all together.

We have made our views known and the need for supporting legislation and direction from various levels of government to put some teeth into, for one, recycling, to permit and encourage citizenship participation. We can take leading roles in developing positive attitudes on this issue. We often say, today is the first day of the rest of our lives, hopefully, we can look back on today as being the first day of a more concerted effort to make all Nova Scotians more environmentally involved.

## LIST OF DELEGATES ATTENDING CONFERENCE

| *Delegate Name* | *Affiliation* |
|---|---|
| Mr. Arthur Abbott | Nova Scotia Dept. of Small Business Development |
| Mr. Wayne Adams | County of Halifax |
| Mr. Roy Aitken | INCO Limited |
| Ms. Gillian Allen | MacInnes/Wilson/Flinn & Wickwire |
| Mr. Peter Allen | Thermo Dynamics Limited |
| Mr. Albert Andrews | Non-Government/Industry |
| Ms. Isabel Archibald | Women's Institutes of Nova Scotia |
| Mr. Sandy Archibald | Britex Limited |
| Mr. Doug Artz | Federal Business Development Bank |
| Ms. Marilyn Atkinson | Province of Nova Scotia |
| Ms. Margaret Bakelaar | Windsor W. Hants Joint Planning Adv. Committee |
| Mr. Ian Ball | Non-Government/Industry |
| Ms. Candy Ballard | Antigonish Recycling Committee |
| Mr. Tim Barber | Nova Scotia Dept. of the Environment |
| Mr. Stephen Batah | Dept.of Commerce & Technology |
| Mr. Charles Baxter | The Clean Nova Scotia Foundation |
| Mr. Donald A. Bayer | City of Dartmouth |
| Dr. Gordon Beanlands | School for Resource and Env. Studies |
| Mr. Alan Bell | Nolan Davis Associates |
| Mr. Edgar Bemister | Atlantic Petroleum Association |
| Mr. Osmundo J. Bentancourt | Nova Scotia Power Corporation |
| Mr. Mark Bernard | Environmental Health Engineer, Dartmouth |
| Dr. Don Bidgood | Nova Scotia Research Foundation |
| Ms. Bianca Bielski | City of Halifax |
| Mr. Ken Black | Rio Kemptville Tin Corporation |
| Ms. Heather Blakney | IPL Incorporated |
| Ms. Naomi Blanchard | Nova Scotia Dept. of Industry |
| Ms. Bonnie Bond | Seagull Pewterers and Silversmiths Ltd. |
| Ms. Mary Boulos | The Clean Nova Scotia Foundation |
| Ms. Catherine Bradshaw | Nova Scotia Youth Corps |
| Mr. Creighton Brisco | Nova Scotia Round Table |
| Ms. Barb Brittain | Tusket R. Env. Protection Assoc. |
| Mr. Richard Brown | Nova Scotia Power Corporation |
| Mr. Daniel Brown | Non-Government/Industry |
| Mr. Garnet Brown | Surrette Battery Limited |
| Hon. John M.Buchanan, P.C. Q.C. | Executive Council, Province of Nova Scotia |
| Mr. Paul Buxton | Upper Clements Park |
| Mr. Gerry Byrne | Scott Maritime Limited |
| Mr. Gary Cameron | Moosehead Breweries Limited |
| Ms. Anne Camozzi | St. Mary's R. Forestry-Wildlife |
| Mr. John Caraberis | Seagull Pewterers & Silversmiths Ltd |
| Mr. P. Carey | Nova Scotia Dept. of Mines and Energy |
| Mr. Jim Carson | Esso Petroleum |
| Mayor Douglas Carter | Towne of Truro |
| Mr. David Chaisson | Jet Equipment & Tools Limited |

*LIST OF DELEGATES (Cont'd)*

| *Delegate Name* | *Affiliation* |
|---|---|
| Mr. Chantal Chalifoux | Environment Canada |
| Mr. Bruce Chanter | Baydun Group |
| Mr. Al Chiasson | Bedford Village Properties Limited |
| Mr. Robert Christie | Citizens Against Pollution |
| Mr. Kingsley Churchill | Stora Forest Industries |
| Mr. Gerald Clark | United Way Appeal |
| Mr. C.L.A. Clarke | Bowater Mersey Paper Company Limited |
| Mr. John D. Clarke | Environment Canada |
| Ms. Dianne Coish | Nova Scotia Department of the Environment |
| Ms. Sheila Cole | Ecology Action Centre |
| Ms. Rose Collicott | Esso Petroleum Canada |
| Ms. Paula Collier | The Clean Nova Scotia Foundation |
| Mr. Terry Collins | From Concept to Print |
| Mr. Louis Comeau | Nova Scotia Power Corporation |
| Mr. Paul Comeau | Nova Scotia Dept. of Community Services |
| Ms. Carol Conrad | Deputy Ministers Committee on Land Use Policy |
| Mr. Neal Conrad | Dept. of Small Business Development |
| Mr. Murray Coolican | National Sea Products |
| Ms. Lois Corbett | Ecology Action Centre |
| Ms. D. Cosman | Bedford Homeowners Association |
| Mr. Raymond Côté | School for Resource and Env. Studies |
| Ms. Liz Crocker | Office - Leader of the Opposition |
| Dr. Melvin Cross | Department of Economics |
| Mr. Bob Cross | Nova Scotia Wildlife Association |
| Mr. Cameron Crowell | Nova Scotia Department of the Environment |
| Mr. Frank Dalziel | City of Dartmouth |
| Mr. David Darrow | Nova Scotia Dept. of Municipal Affairs |
| Mr. Alan Davidson | Canadian Salt Company Limited |
| Ms. Shirley Deck | Nova Scotia Dept. of the Environment |
| Mr. Martin Delaney | N. S. Dept. of Transportation & Communications |
| Mr. Garth Demont | Non-Government/Industry |
| Mr. Harold Dobson | Bowater Mersy Paper Company Limited |
| Mr. Robert Downie | Bolands Limited |
| Mr. James Drescher | Eastern Forestry Development Limited |
| Mr. Don Duncan | Voluntary Planning |
| Ms. Linda Duncan | Dalhousie Law School Dalhousie University |
| Mr. Jack Dunlop | Bowater Mersey Paper Company Limited |
| Mr. Ivan Duvar | Maritime Tel & Tel Limited |
| Mr. Daniel Eidt | Nova Scotia Dept. of Lands & Forests |
| Mr. J.R. "Pat" Ellis | Advisory Board/Marsh & McLennan |
| Mr. Lorne Etler | Nova Scotia Forest Products Assoc. |
| Mr. Archie Fader | NS & PEI Recycling Assoc. |
| Mr. H.A. Fagan | H.A. Fagan In Trust |
| Mr. Hugh Fairn | Voluntary Planning |
| Mr. David Fanning | Jacques, Whitford & Associates |
| Ms. Geneva Faulkner | Lighthouse Publishing |
| Mr. Frank Fawson | Non-Government/Industry |

*LIST OF DELEGATES (Cont'd)*

| *Delegate Name* | *Affiliation* |
|---|---|
| Mr. John Fitzgerald | Fundy Gypsum Company Limited |
| Mr. Richard Foot | Nova Scotia Youth Corps |
| Mr. George Foote | Nova Scotia Depart. of Mines & Energy |
| Mr. Robert Frame | Nova Scotia Museum Complex |
| Mr. Bob Frank | Mun. of Lunenburg Ind. Comm. |
| Mr. Angus Fraser | Non-Government/Industry |
| Mr. P.B. Freeman | Bowater Mersey Paper Company Limited |
| Mr. Aubrey Fricker | Non-Government/Industry |
| Dr. Marion Fry | University of King's College |
| Mr. Stephen Fudge | Jacques, Whitford & Associates |
| Mr. Paul Galbraith | Atmospheric Environment Service |
| Mr. Fran Galvon | Michelin Tire (Canada) Incorporated |
| Mr. Scott Giffin | Nova Scotia Department of Health & Fitness |
| Ms. Diane Giffin-Boudreau | Environment Canada |
| Mr. Claude Giguere | Canso Chemicals Limited |
| Mr. Rick Gilbert | Nova Scotia Sport and Recreation Commission |
| Mr. Tim Gilfoy | Enterprise C. B. Corporation |
| Mr. Gordon Gillis | Nova Scotia Dept. of Municipal Affairs |
| Ms. Rose Gillis | Non Government/Industry |
| Mr. James Goit | Nova Scotia Department of Agriculture |
| Mr. John Gordon | Ecology Action Centre |
| Ms. Martha Gorman | Non-Government/Industry |
| Mr. Jim Gourlay | Eastern Woods and Waters |
| Mr. Jim M. Graham | Georgia Pacific Operations |
| Mr. Daniel Graham | Nova Scotia Dept. of Lands & Forests |
| Mr. Robert Grant | Stewart, MacKeen & Covert |
| Ms. Deborah Grant | City of Halifax |
| Ms. Kate Graves | Educator |
| Mr. Alan Gray | School for Resource/Env Studies |
| Mr. Parker Gray | New Brunswick Dept. of the Environment |
| Ms. Lorna Green | Non-Government/Industry |
| Ms. Brenda Haley | Nova Scotia Dept. of Industry, Trade and Tech. |
| Mr. Tom Hall | Stora Forest Industries |
| Mr. R. E. Hannay | Canadian National Railways |
| Ms. Vicki Harnish | Economics and Statistics |
| Mr. James Harrison | Environmental Control Council |
| Ms. Pamela Harrison | Cumberland Development Authority |
| Mr. Dr. William Hart | Technical University of Nova Scotia |
| Mr. Elmer Hatfield | Georgia Pacific Corp. |
| Mr. Greg Haverstock | Nova Scotia Dept. of Mines & Energy |
| Mr. Dave Healey | National Research Council Canada - IRAP |
| Ms. Vichi Healy | Tusket River Environment Protection Assoc. |
| Mr. Gordon Helm | River Enhacement Project |
| Mr. Terry Hennigar | Environment Canada |
| Ms. Patricia Hinch | Environment and Economy Conference |
| Ms. Susan Holtz | Ecology Action Centre |
| Ms. Peggy Hope-Sympson | King's Environmental Groups |
| Mr. David Hopper | Nova Scotia Dept. of Mines and Energy |

*LIST OF DELEGATES (Cont'd)*

| *Delegate Name* | *Affiliation* |
|---|---|
| Mr. Ken Howells | Nova Scotia Research Foundation Corp. |
| Mr. Eric Hundert | North Mountain Woodlands |
| Mr. Don Huntington | Town of Bedford |
| Mr. Jeff Hurley | Hurley Fisheries Consulting Limited |
| Mr. Brian Ives | Nova Mariculture |
| Ms. A. Janega | Nova Scotia Dept. of Small Business Development |
| Ms. Heather Johannesen | Non-Government/Industry |
| Ms. Sandra Johnson | Pictou Co. Community Futures Comm |
| Ms. Sonya Jones | Peninsula Farms |
| Mr. John Jones | Nova Scotia Department of the Environment |
| Mr. Al Joudrey | Municipality of Annapolis County |
| Mr. Steve Karis | Canso Chemicals Limited |
| Mr. John Kearney | Maritime Fisherman's Union |
| Mr. Donald Keith | Dartmouth District School Board |
| Ms. Kathleen Kellock | Acadia University |
| Ms. Helen Kerr | River Enhancement Project |
| Ms. Cathy Kerr | Nova Scotia Trails Federation |
| Mr. Walter Kontak | Voluntary Planning |
| Mr. A.E. Kosov | State Comm. for Env. Protection |
| Mr. E.G. Kubrynski | Esso Petroleum Canada |
| Mr. Jack Kyte | Scott Maritimes Limited |
| Ms. Judy Lake | Non-Government/Industry |
| Mr. Raymond Lamoureux | Non-Government/Industry |
| Dr. Patricia Lane | P. Lane & Associates Limited |
| Mr. Nick Lasch | Municipality of Annapolis County |
| Mr. Truman Layton | Voluntary Planning |
| Ms. Christina Lazier | President's Leadership Class |
| Mr. Peter LeBlanc | Committee of Regional Executives |
| Ms. Annick LeHenoff | Environment Canada |
| Honourable John G. Leefe | Nova Scotia Department of the Environment |
| Mr. Jack Leydon | Nolan, Davis & Associates |
| Mr. Victor Li | Canadian Pacific Forest Products |
| Mr. W.H. Lindner | Centre for Our Common Future |
| Mr. Neil Livingston | Margarie Environmental Protection Assoc. |
| Mr. Brian E. Lowe | Marine and Environmental Services |
| Mr. Chris Lowe | UMA Engineering Limited |
| Mr. Robert MacClure | Gulf Seafoods (1988) Limited |
| Ms. Carol MacCulloch | Canadian Manufacturer's Assoc. |
| Ms. Betty MacDonald | Atlantic Canada Opportunities Agency |
| Mr. Terry MacDonald | Nova Scotia Power Corporation |
| Ms. Rebecca-Lynne, MacDonald-May | Planatary Citizens |
| Mr. John MacGregor | Voluntary Planning - Nova Scotia Dept. of Small Business Development |
| Ms. Pam MacInnis | National Sea Products Limited |
| Honourable John A. MacIsaac | Nova Scotia Department of Mines and Energy |
| Mr. Anthony MacKay | Joint Planning Advisory Committee |
| Mr. Harold MacKay | Moosehead Breweries Limited |

*LIST OF DELEGATES (Cont'd)*

| *Delegate Name* | *Affiliation* |
|---|---|
| Mr. George MacKenzie | Nova Scotia Dept. of Agriculture/Market |
| Ms. Joan MacKinnon | Mun. of the County of Halifax |
| Mr. Scott MacKnight | OCL Services Limited |
| Mr. Jack MacLean | Town of New Glasgow |
| Mr. Peter MacLellan | Corporate Communications Limited |
| Mr. Danny MacLeod | Town of New Glasgow |
| Mr. Edward MacMaster | Mun. of the County of Pictou |
| Ms. Audrey Manzer | Dartmouth Lakes Advisory Board |
| Mr. Gerry Marshall | Browning - Ferris Industries Limited |
| Mr. David Martin | The Bank of Nova Scotia |
| Ms. Sandra Martin | Non Government/Industry |
| Mr. Gerrie Masters | Nova Scotia Department of Education |
| Ms. Muriel Maybee | Assoc for Health/Learning/Leisure |
| Mr. Ken McDermid | Nova Scotia Department of Transportation and Comm. |
| Ms. Nancy McInnis-Leek | Nova Scotia Dept. of Mines & Energy |
| Dr. Ellen McLean | Assoc. Country-Women of the World |
| Ms. Colleen Mercer-Clarke | Cdn Society of Env. Biologists |
| Mr. Thomas Merriam | Nova Scotia Dept. of Industry Trade & Technology |
| Mr. John Mersereau | Department of Municipal Affairs |
| Mr. Stan Middaugh | The Royal Bank of Canada |
| Mr. Geoffrey Middleton May | CB Landowners Against The Spray |
| Mr. John R. Milligan | Great Escapes Adventure Alternatives |
| Mr. Randy Milton | St Mary's River/Forestry/Wildlife |
| Mr. George Moore | Town of Middleton |
| Mr. Allan Morrison | Town of New Waterford |
| Mr. Craig Morrison | Nova Scotia Dept. of the Environment |
| Ms. Kathryn Morse | Atlantic Environmental Network |
| Ms. Rebecca Mosher | Non-Government/Industry |
| Ms. Anne Muecke | Griffiths Muecke Associates |
| Mr. John Mullally | Nova Scotia Department of Lands and Forests |
| Mr. William Mundle | Logan Drilling Limited |
| Mr. Kirk Munro | Maritime Fishermen's Union Local |
| Mr. Daniel Murray | Nova Scotia Dept. of Mines and Energy |
| Dr. Douglas Myers | Henson College, Dalhousie University |
| Mr. Richard Nancarrow | Jacques, Whitford & Associates |
| Hon. David Nantes | Dept. of Health & Fitness |
| Ms. Shirley Nicholson | Environmental Control Council |
| Mr. Ed Norrena | Conservation and Protection - Env. Cdn. |
| Shingai Nyajeka | Non-Government/Industry |
| Mr. Ken O'Brien | N. S. Dept. of Transportation & Communication |
| Mr. Robert O'Keefe | Massachusett's Environment |
| Mr. Robert O'Regan | Agriculture Canada |
| Mr. Kelvin Ogilvie | Acadia University |
| Mr. Bob Ogilvie | Nova Scotia Museum |
| Mr. Peter Oickle | Lunenburg County District Planning Commission |
| Ms. Beatrice Olivastri | National Survival Institute, Ottawa |
| Mr. Charlie Parker | Mun. of the County of Pictou |
| Mr. Stephen Parkinson | Canadian Motorcycle Association |

*LIST OF DELEGATES (Cont'd)*

| *Delegate Name* | *Affiliation* |
|---|---|
| Ms. Virginia Parkinson | Nova Scotia Trails Federation |
| Dr. Sifford Pearre | Halifax Field Naturalists |
| Ms. Cristina Pekarik | Ecology Action Centre |
| Mr. Douglas Perry | Crossley Karastan Carpet Mills Limited |
| Mr. Emery Peters | Public Works Canada |
| Mr. Brian Peters | Coalition for Alt. to Pesticides |
| Mr. Pat Phelan | Nova Scotia Dept. of Mines & Energy |
| Mr. Gerald J. Phillips | Westray Coal Incorporated |
| Mr. Armand F. Pinard | Nova Scotia Department of the Environment |
| Mr. Daniel Plasse | Earth & Ocean Research Limited |
| Mr. John Plummer | Imperial Oil Limited |
| Dr. John Prentice | Occupational Health Services - MT&T |
| Mr. Robert Rawlins | Michelin Tires (Canada) Limited |
| Ms. Janis Raymond | Nova Scotia Dept. of Fisheries |
| Mr. Phil Read | CANMET |
| Ms. Mary Redden | Town of Bridgewater |
| Mr. Charles Restino | N. S. Coaltion for Alternatives to Pesticides |
| Ms. Katharine Rice | Universalia Atlantic |
| Mr. Paul Richard | Non-Government/Industry |
| Ms. Patricia Richard | City of Dartmouth |
| Mr. Peter Ricketts | Saint Mary's University |
| Mr. Edward Rideout | Richmond County Municipality |
| Mr. Kent Robinson | Dartmouth District School Board |
| Mr. Cal Ross | Valley Environmental Services |
| Mr. Pat Ryan | Bank of Montreal |
| Mr. Geoff Saunders | MacInnes/Wilson/Flinn & Wickwire |
| Mayor John Savage | City of Dartmouth |
| Mr. Aaron Schneider | Centre for International Studies |
| Mr. Lester Settle | Voluntary Planning |
| Mr. Allan Shaw | L.E. Shaw Limited |
| Mr. Robbie Shaw | National Sea Products Limited |
| Mr. Ron Simpson | Nova Scotia Dept. of Municipal Affairs |
| Mr. Bill Smith | Nova Scotia College of Art and Design |
| Ms. Nancy Smith | Non-Government/Industry |
| Ms. Ruth Smith | Ecology Action Centre |
| Mr. Robert F. Smith | Municipality of Annapolis County |
| Mr. Dayle Smith | Scott Maritimes Limited |
| Mr. Val Spencer | Municipality of the County of Halifax |
| Mr. Jim Stanley | Cumberland Development Corporation |
| Mr. Patrick Stewart | Seakem Oceanography Limited |
| Mr. Lester Stewart | Petro Canada Products Incorporated - APA |
| Mr. Colin Stewart | Stewart Consulting |
| Mr. Peter Stokoe | Dalhousie University |
| Ms. Vera Stone | Clean Nova Scotia Foundation |
| Mr. John Stone | Nova Scotia Dept. of Education |
| Honourable Ken Streatch | Nova Scotia Dept. of Small Business Development |
| Mr. Hugh Tattersall | Non-Government/Industry |
| Mr. Laurie Taylor | East Coast Petroleum Association |

*LIST OF DELEGATES (Cont'd)*

| *Delegate Name* | *Affiliation* |
|---|---|
| Mr. Geza C. Teleki | Resource Systems Management International |
| Ms. Claudette Terrio | Nova Scotia Forest Products Assoc. |
| Mr. John Theakston | Nova Scotia Dept. of the Environment |
| Dr. Gillian Thomas | St. Mary's University |
| Ms. Anne Thompson | Industry, Science & Technology |
| Mr. Frank Thornton | Advance Laboratories Limited |
| Mr. Bill Thorpe | Nova Scotia Research Foundation |
| Mr. C.J. Thorpe | The Clean Nova Scotia Foundation |
| Mr. Frank Tibbetts | Tibbetts Paints Limited |
| Mr. Gordon Tidmarsh | Texaco Canada Resources Incorporated |
| Mr. A.D. Tillett | Lester Pearson Institute |
| Mr. Ian Travers | Environment Canada |
| Mr. V.E. Tretjakov | State Comm. for Env. Protection, USSR |
| Mr. Peter Underwood | Nova Scotia Dept. of the Environment |
| Dr. John K. Underwood | Nova Scotia Department of the Environment |
| Mr. Frank Van Schaayk | Ben's Limited |
| Mr. David Vanderzwagg | Dalhousie Law School |
| Mr. Jim Vollmershausen | Environment Canada |
| Ms. Jean Wagener | City of Dartmouth |
| Mr. Dean Walker | Technical University of Nova Scotia |
| Dr. Don Waller | Centre for Water Resource Studies - TUNS |
| Mr. Russ Waycott | Stora Foresty Industries Limited |
| Mr. Charles Weir | Nova Scotia Council of Labour |
| Ms. Alice White | Annapolis Field Nat. Society |
| Ms. Ann Wilkie | Lavalin Incorporated |
| Mr. Ellinor Williams | Land Use Policy Committee, LRIS |
| Ms. Heather Williams | Voluntary Planning |
| Mr. Ollie Williams | The Clean Nova Scotia Foundation |
| Mr. Cecil Wilson | Town of New Waterford |
| Mr. John Woods | City of Dartmouth |
| Mr. Matthew Wright | Nova Scotia Forest Products Assoc. |
| Mr. S. Zamiatin | Embassy of the Union of Soviet Socialist Republics |
| Mr. Lawrence Zimmering | Lavalin Incorporated |
| Mr. Sherman Zwicker | Union of Nova Scotia Municipalities |
| Mr. Barry Zwicker | Town of Bedford |